



1/46

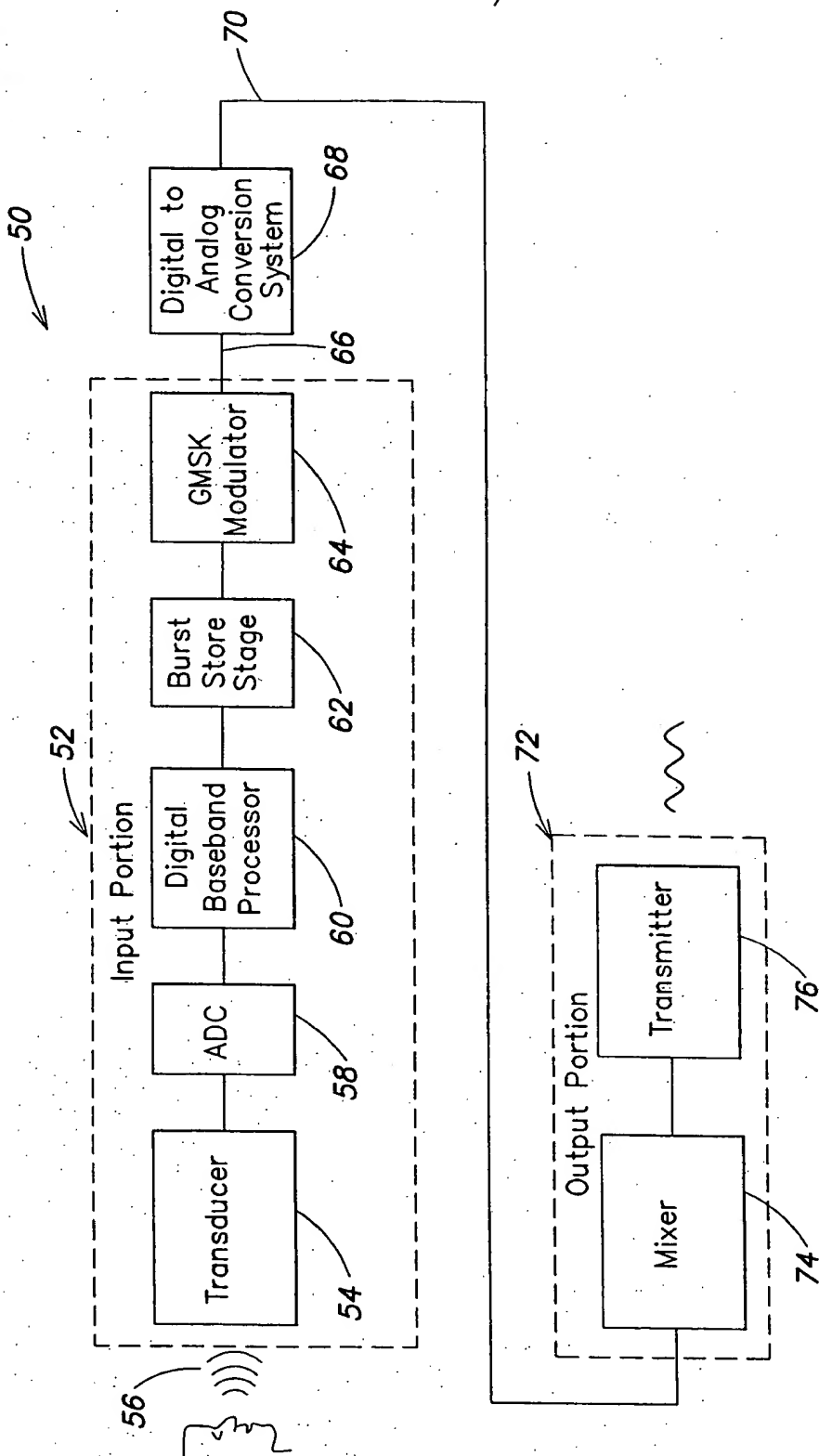
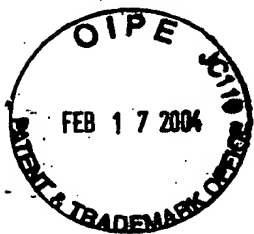


FIG. 1



2/46

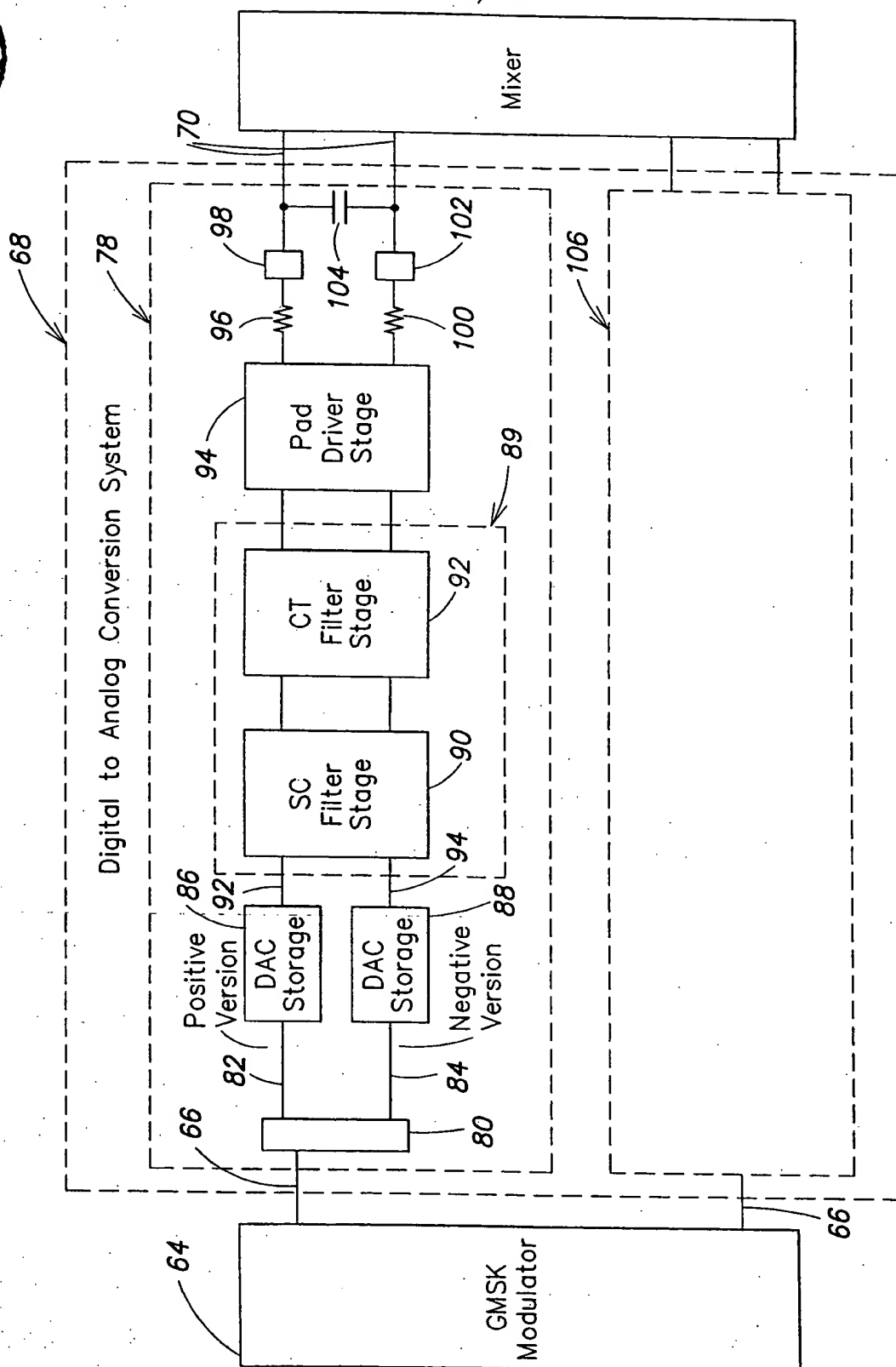
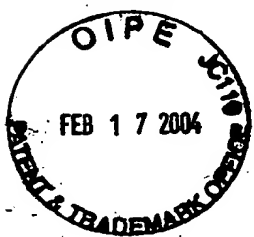


FIG. 2



3/46

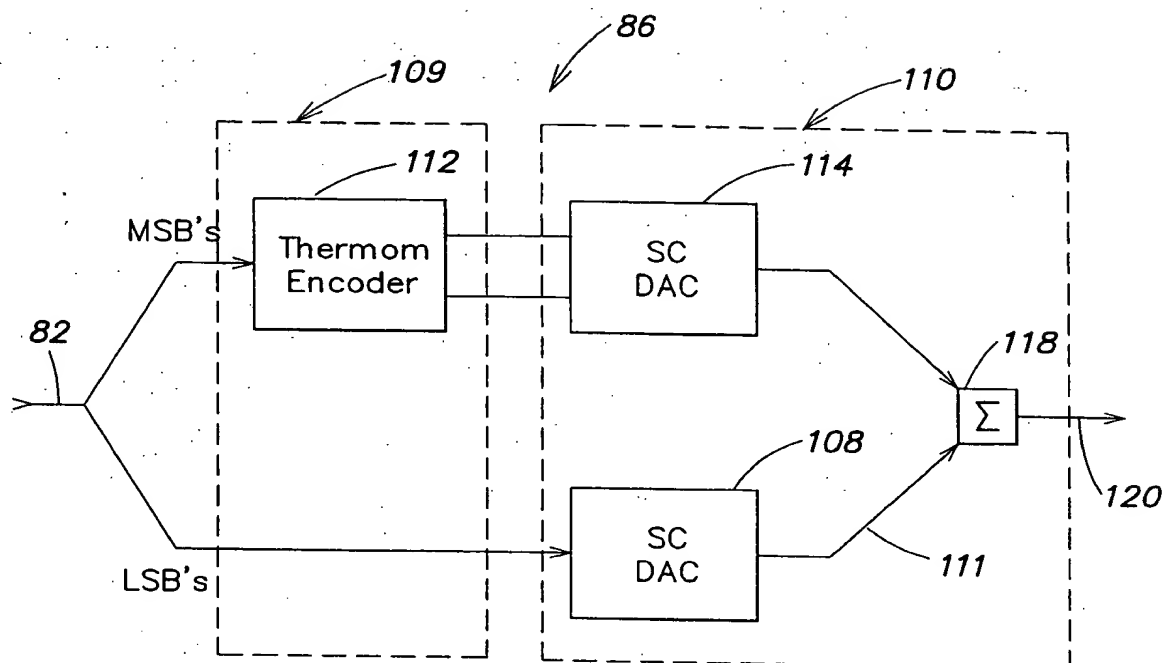


FIG. 3



4/46

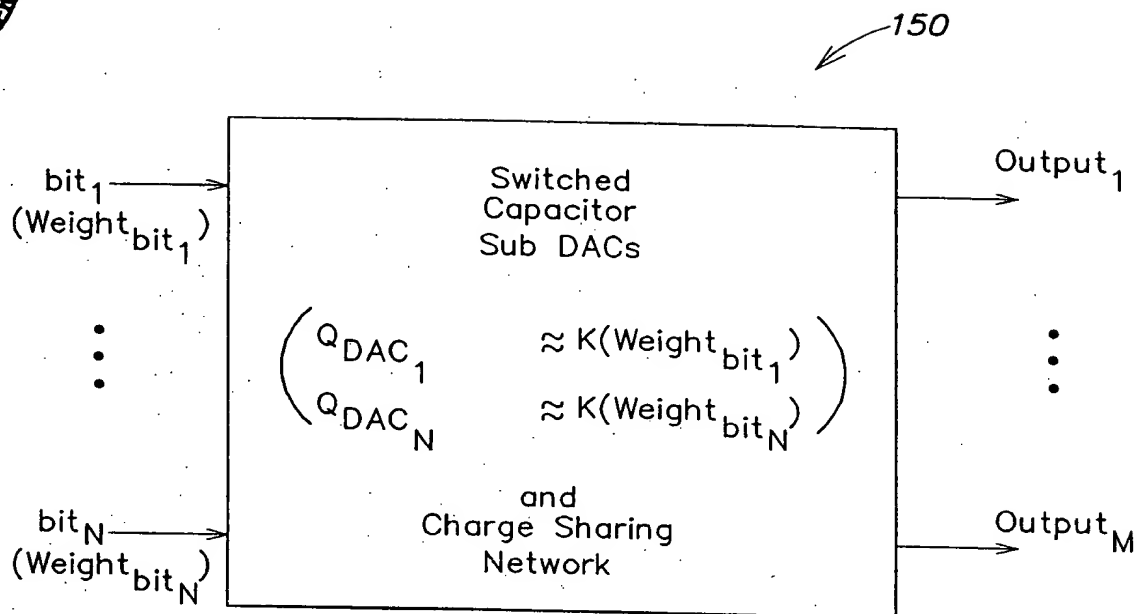


FIG. 4

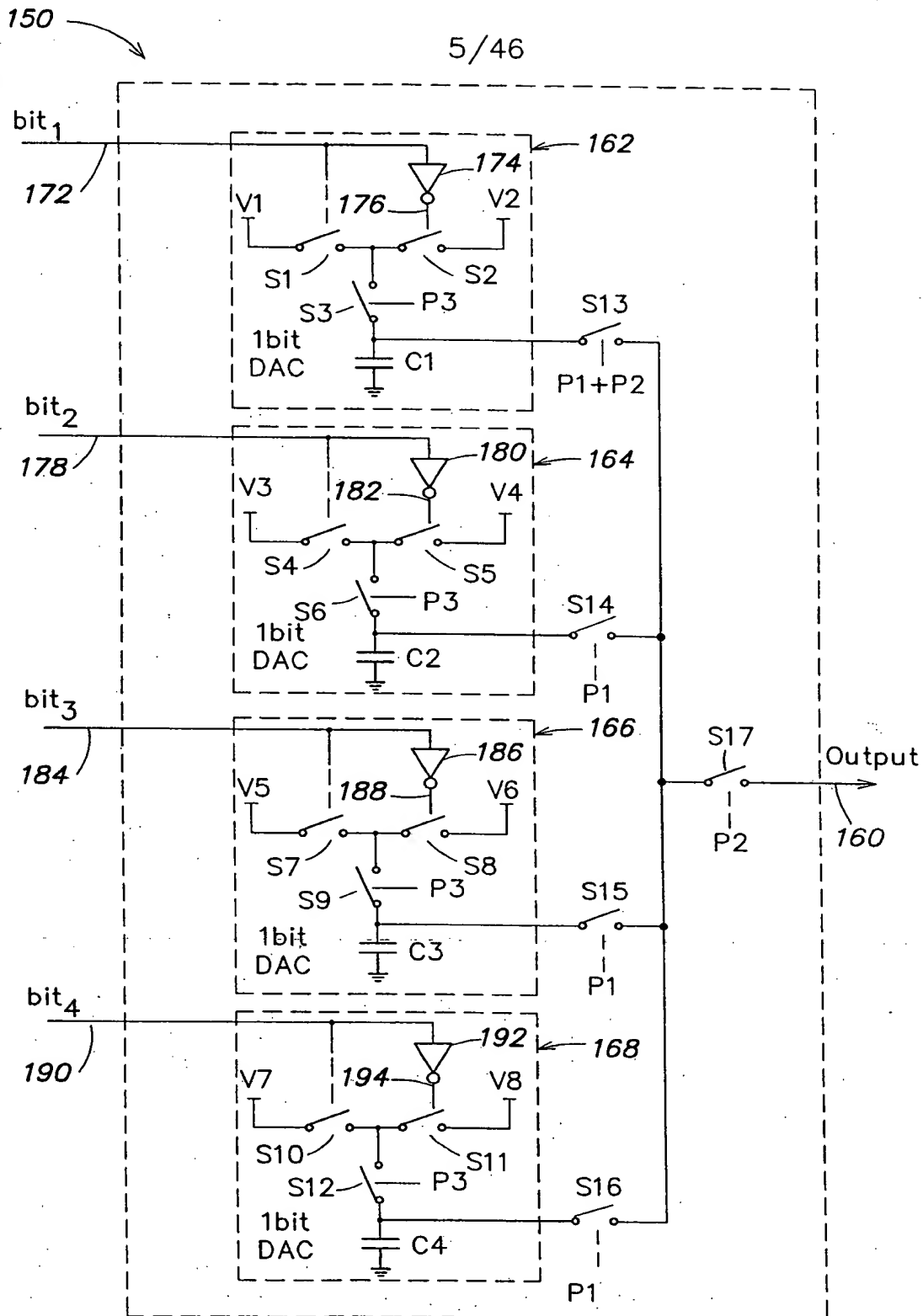


FIG. 5



6/46

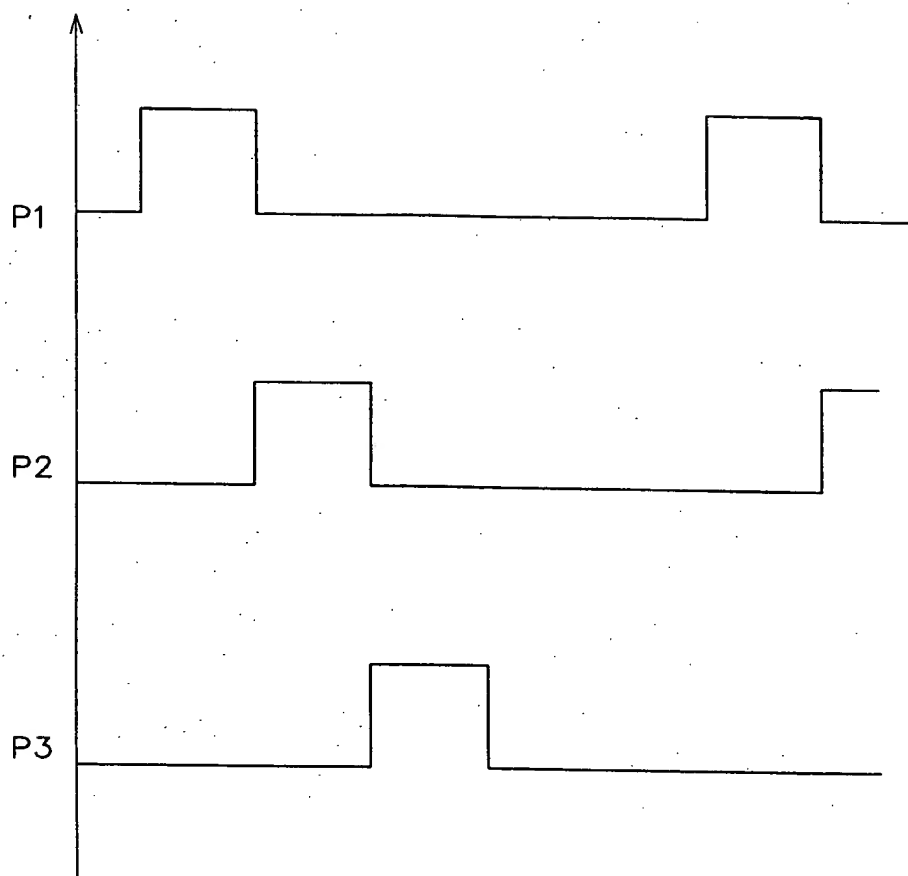


FIG. 6

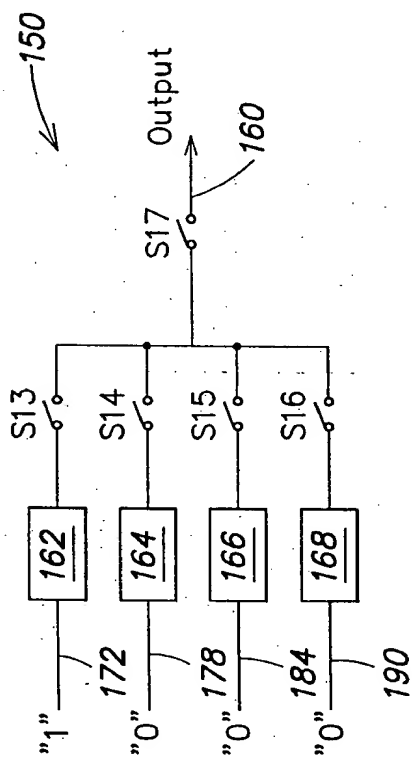


FIG. 7A

P1="0"	$V(C1)=V_{ref}$	$Q(C1)=C \cdot V_{ref}$
P2="0"	$V(C2)=0$	$Q(C2)=0$
P3="1"	$V(C3)=0$	$Q(C3)=0$
	$V(C4)=0$	$Q(C4)=0$

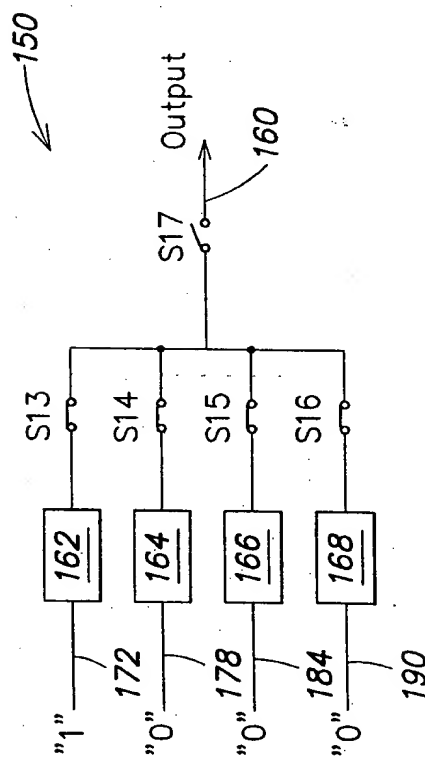


FIG. 7B

P1="1"	$V(C1)=V_{ref}/4$	$Q(C1)=C \cdot V_{ref}/4$
P2="0"	$V(C2)=V_{ref}/4$	$Q(C2)=C \cdot V_{ref}/4$
P3="0"	$V(C3)=V_{ref}/4$	$Q(C3)=C \cdot V_{ref}/4$
	$V(C4)=V_{ref}/4$	$Q(C4)=C \cdot V_{ref}/4$



8/46

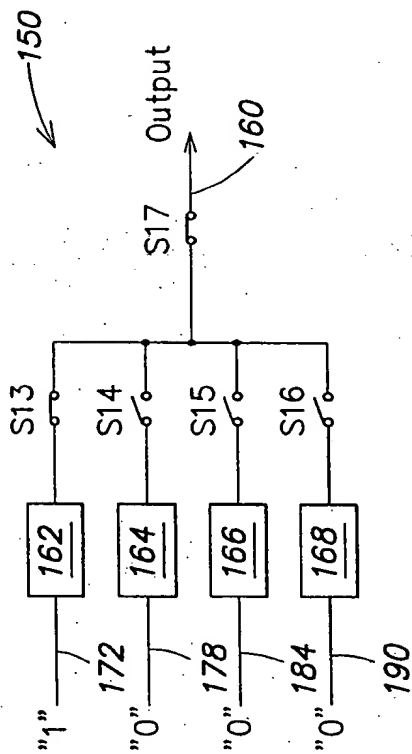


FIG. 7C

P1 = "0"	$V(C1) = V_{ref}/4$	$Q(C1) = C \cdot V_{ref}/4$
P2 = "1"	$V(C2) = V_{ref}/4$	$Q(C2) = C \cdot V_{ref}/4$
P3 = "0"	$V(C3) = V_{ref}/4$	$Q(C3) = C \cdot V_{ref}/4$
	$V(C4) = V_{ref}/4$	$Q(C4) = C \cdot V_{ref}/4$

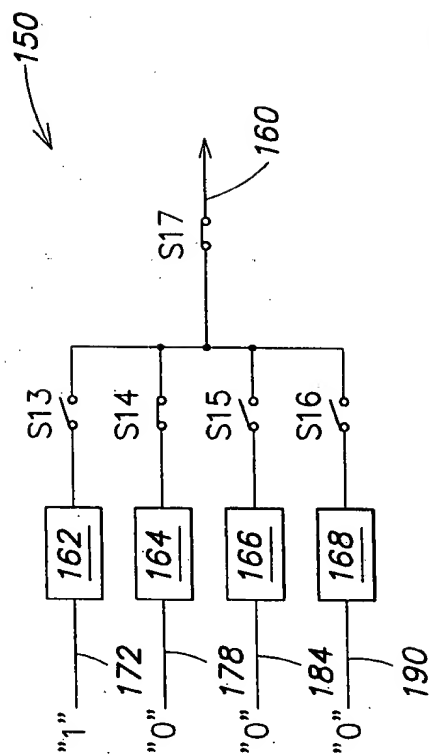


FIG. 10



9/46

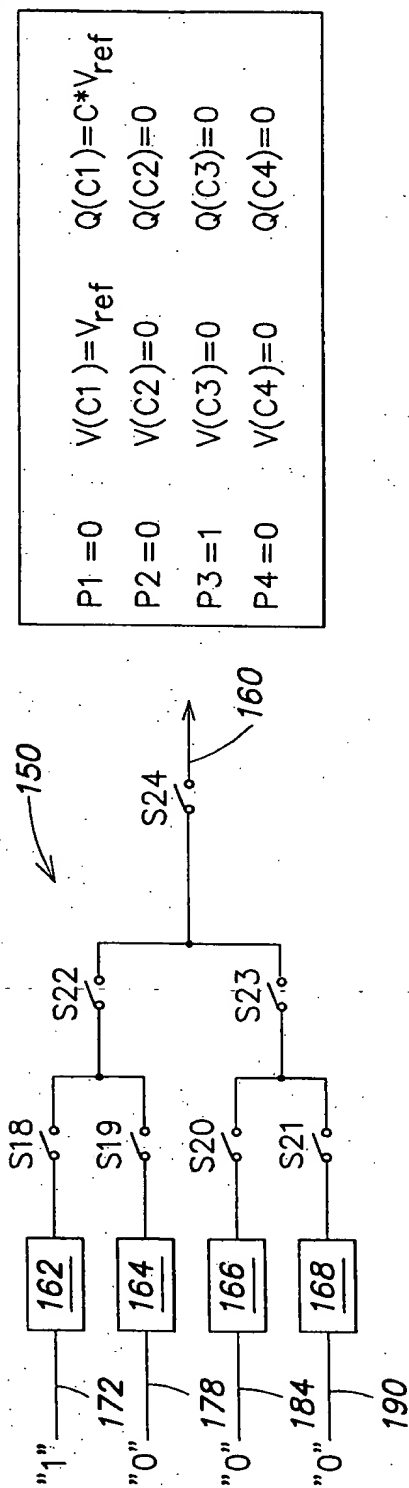


FIG. 8A

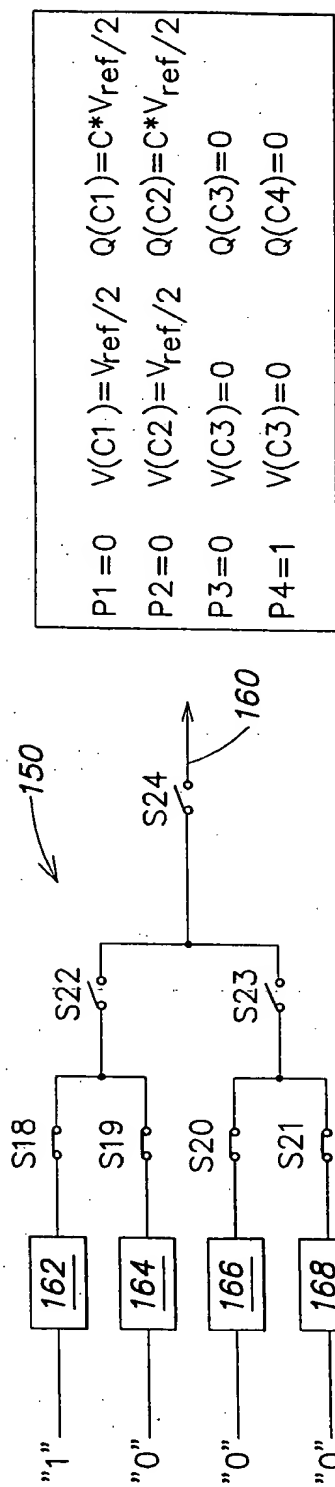
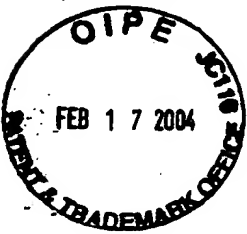


FIG. 8B



10/46

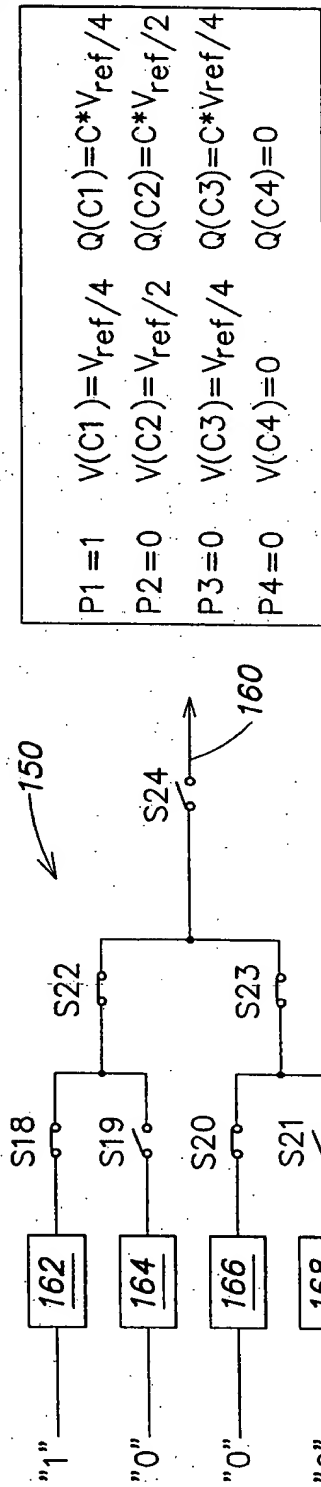


FIG. 8C

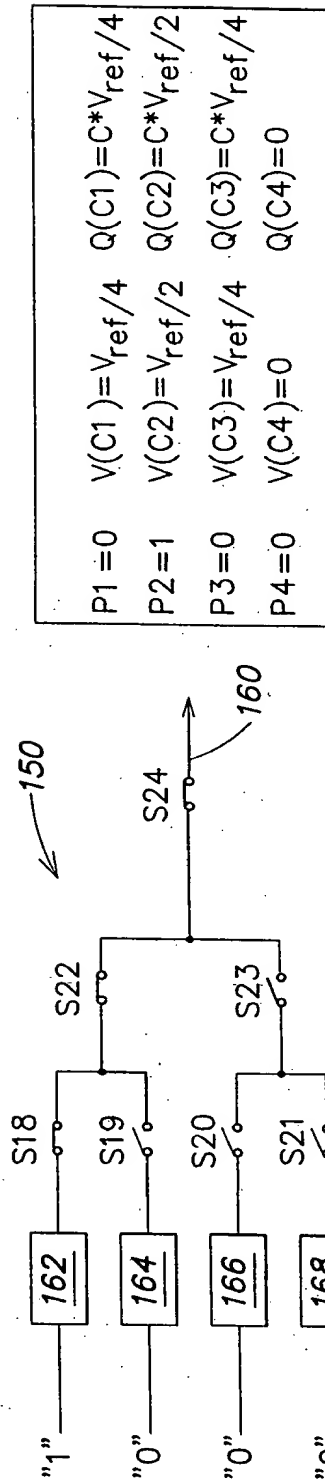


FIG. 8D



11/46

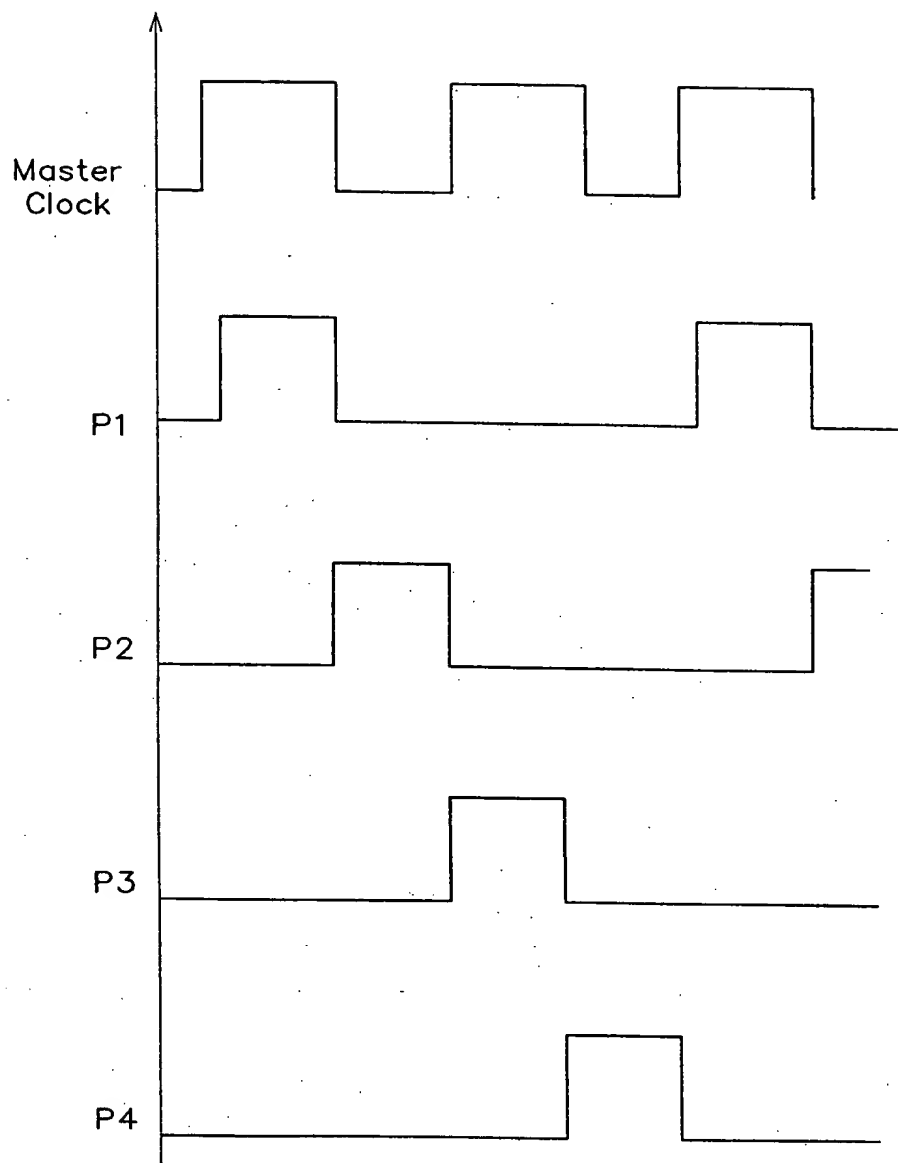


FIG. 9



12/46

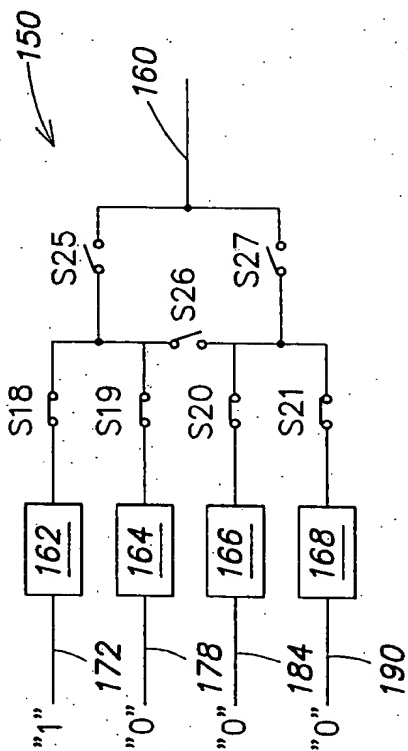


FIG. 11B

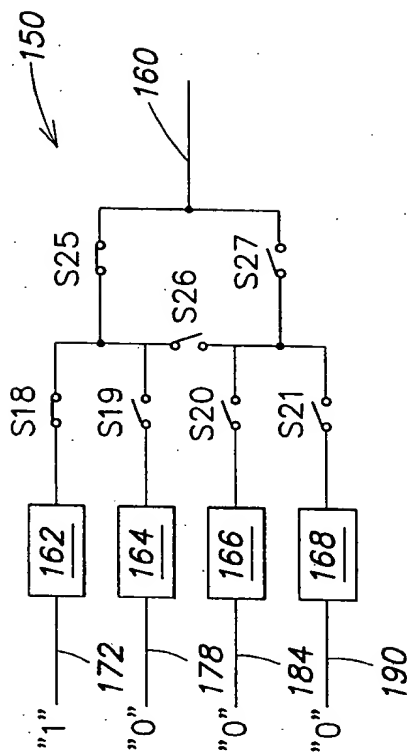


FIG. 11D

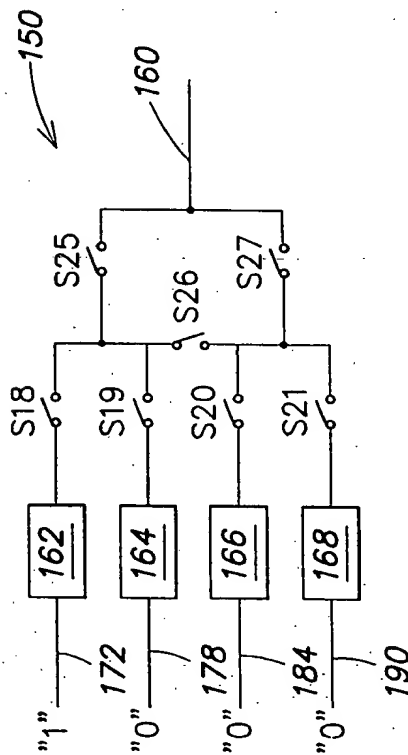


FIG. 11A

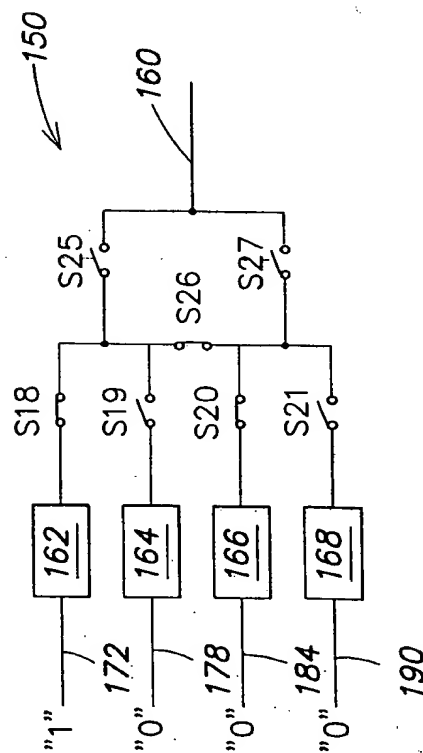


FIG. 11C

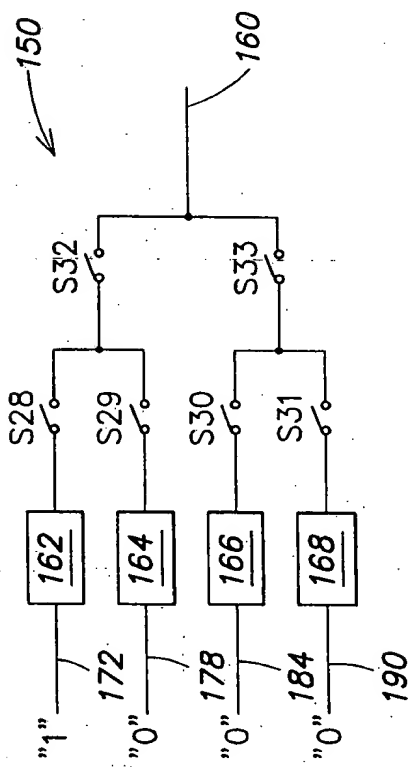


FIG. 12A

P1 = 0	$V(C1) = V_{ref}$	$Q(C1) = C \cdot V_{ref}$
P2 = 0	$V(C2) = 0$	$Q(C2) = 0$
P3 = 1	$V(C3) = 0$	$Q(C3) = 0$
	$V(C4) = 0$	$Q(C4) = 0$

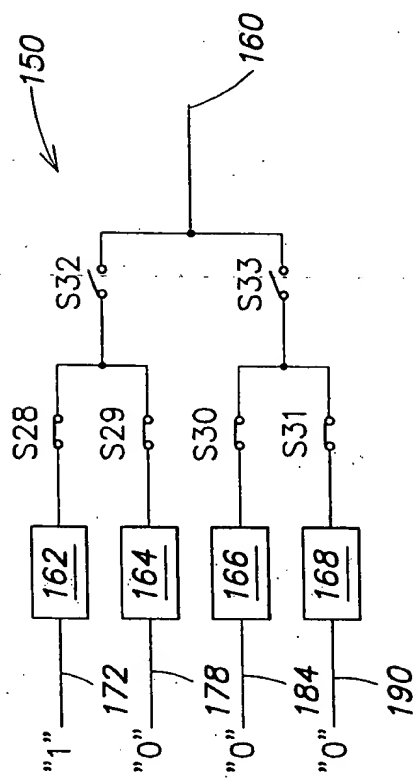


FIG. 12B

P1 = 1	$V(C1) = V_{ref}/2$	$Q(C1) = C \cdot V_{ref}/2$
P2 = 0	$V(C2) = V_{ref}/2$	$Q(C2) = C \cdot V_{ref}/2$
P3 = 0	$V(C3) = 0$	$Q(C3) = 0$
	$V(C4) = 0$	$Q(C4) = 0$

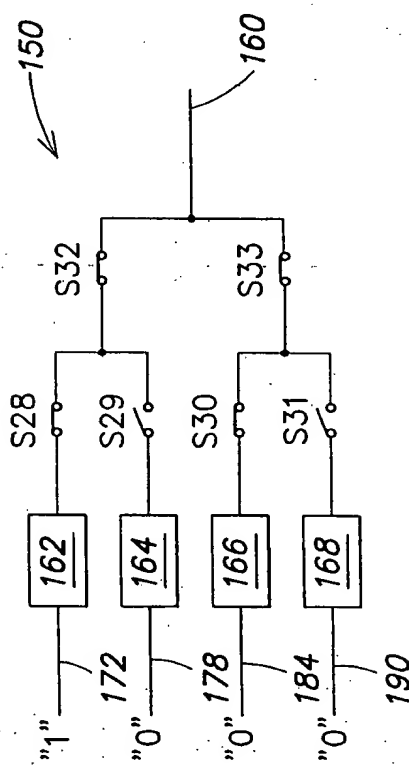
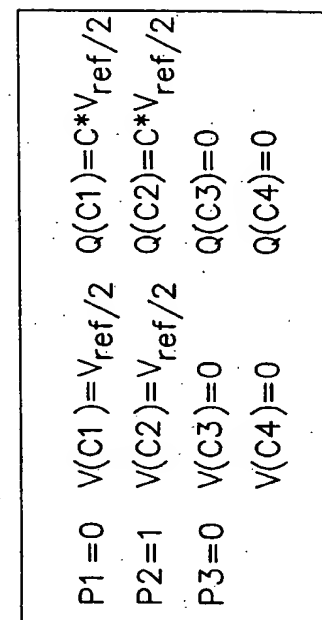
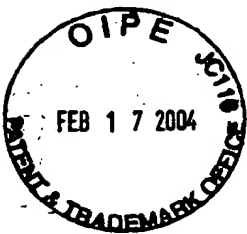


FIG. 12C

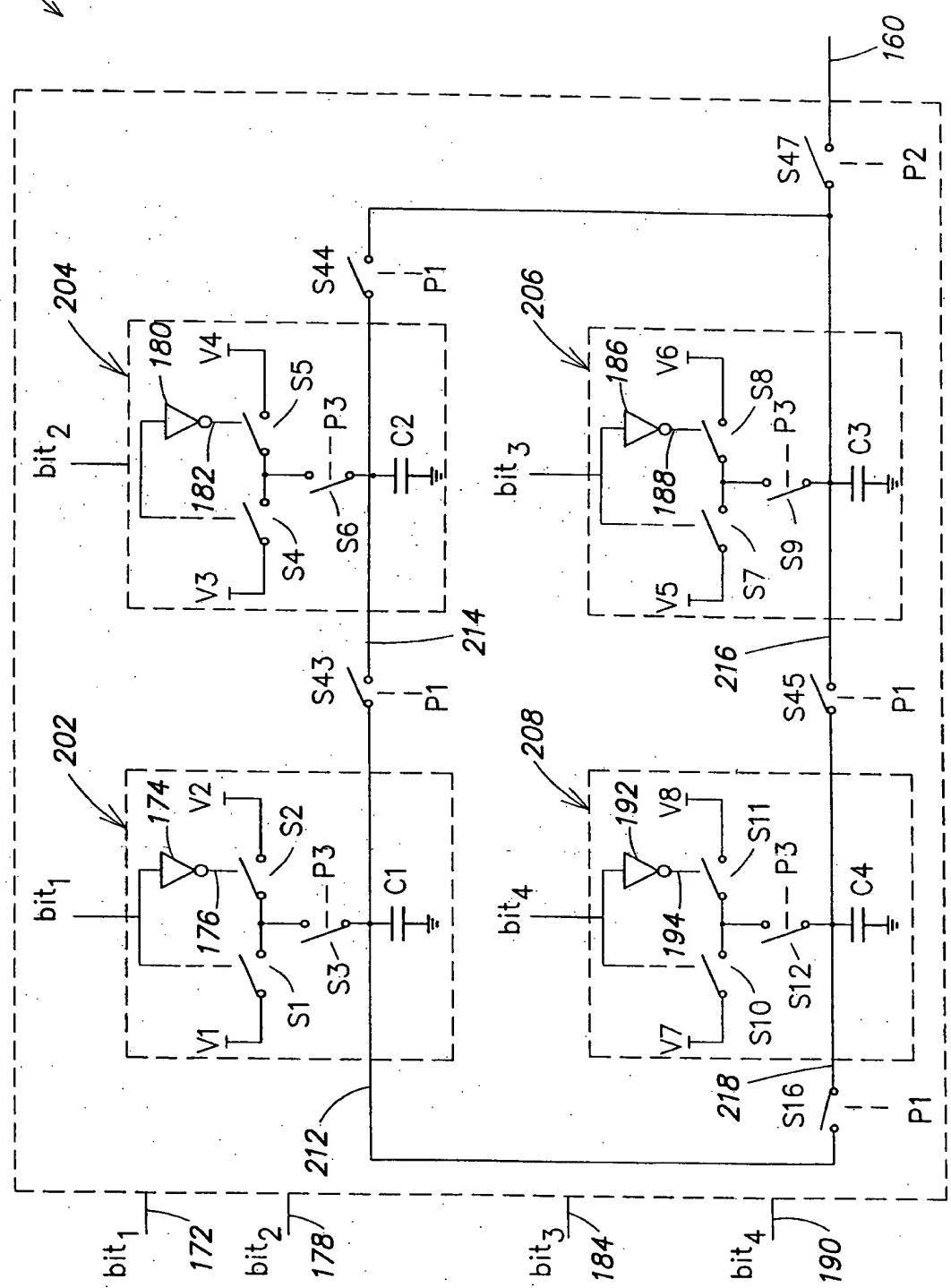
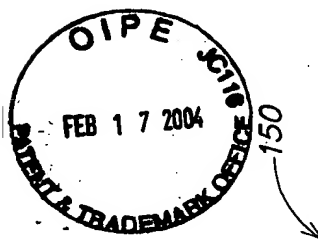
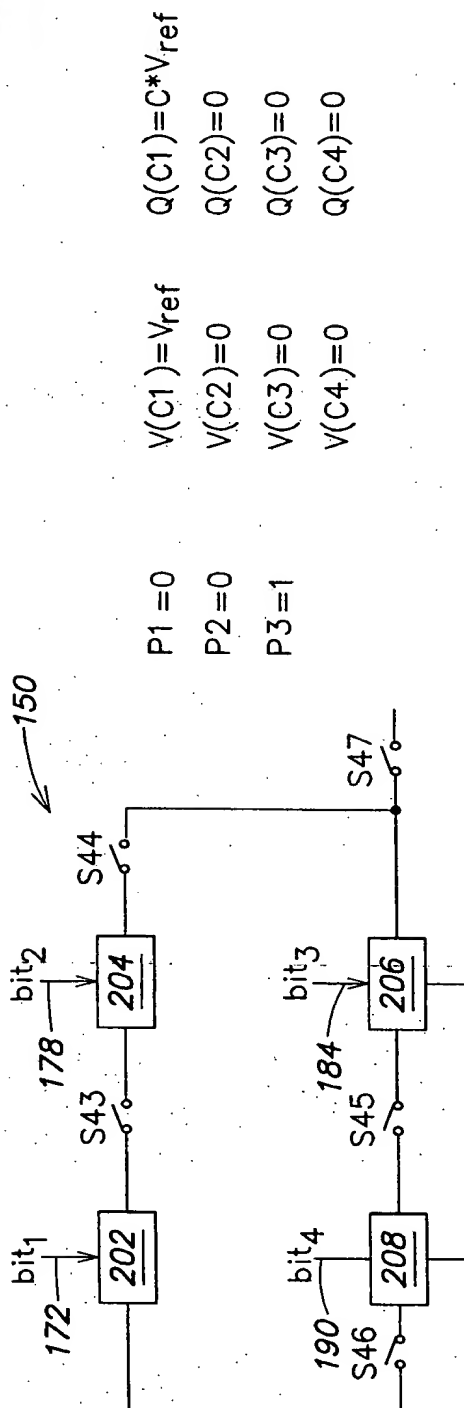


FIG. 13

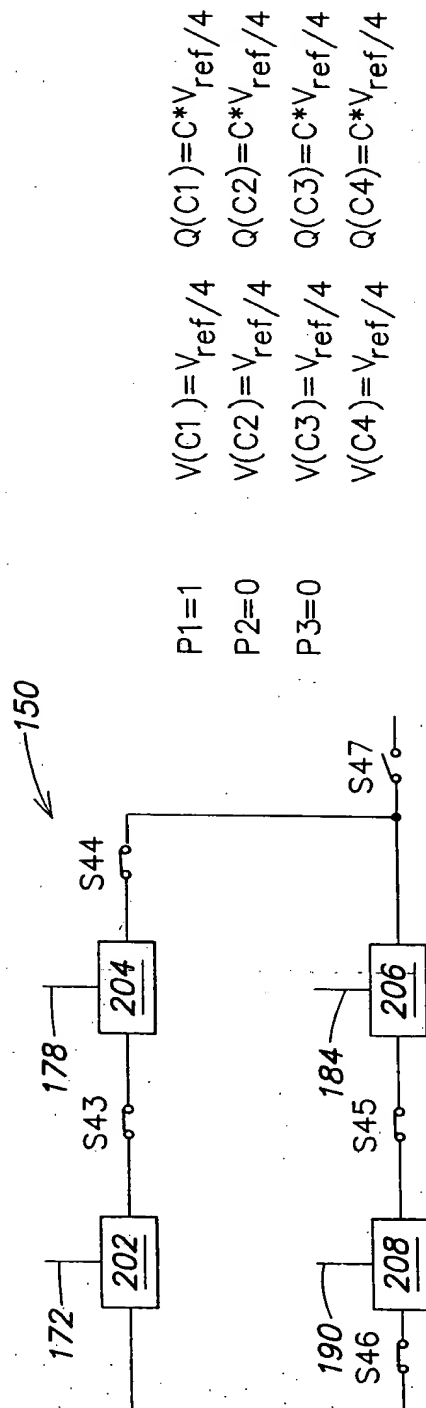


$$\begin{aligned} V(C1) &= V_{ref} \\ V(C2) &= 0 \\ V(C3) &= 0 \\ V(C4) &= 0 \end{aligned}$$

$$\begin{aligned} Q(C1) &= C \cdot V_{ref} \\ Q(C2) &= 0 \\ Q(C3) &= 0 \\ Q(C4) &= 0 \end{aligned}$$

$$\begin{aligned} P1 &= 0 \\ P2 &= 0 \\ P3 &= 1 \end{aligned}$$

FIG. 14A



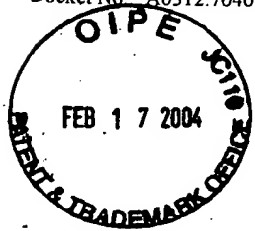
$$\begin{aligned} V(C1) &= V_{ref}/4 \\ V(C2) &= V_{ref}/4 \\ V(C3) &= V_{ref}/4 \\ V(C4) &= V_{ref}/4 \end{aligned}$$

$$\begin{aligned} Q(C1) &= C \cdot V_{ref}/4 \\ Q(C2) &= C \cdot V_{ref}/4 \\ Q(C3) &= C \cdot V_{ref}/4 \\ Q(C4) &= C \cdot V_{ref}/4 \end{aligned}$$

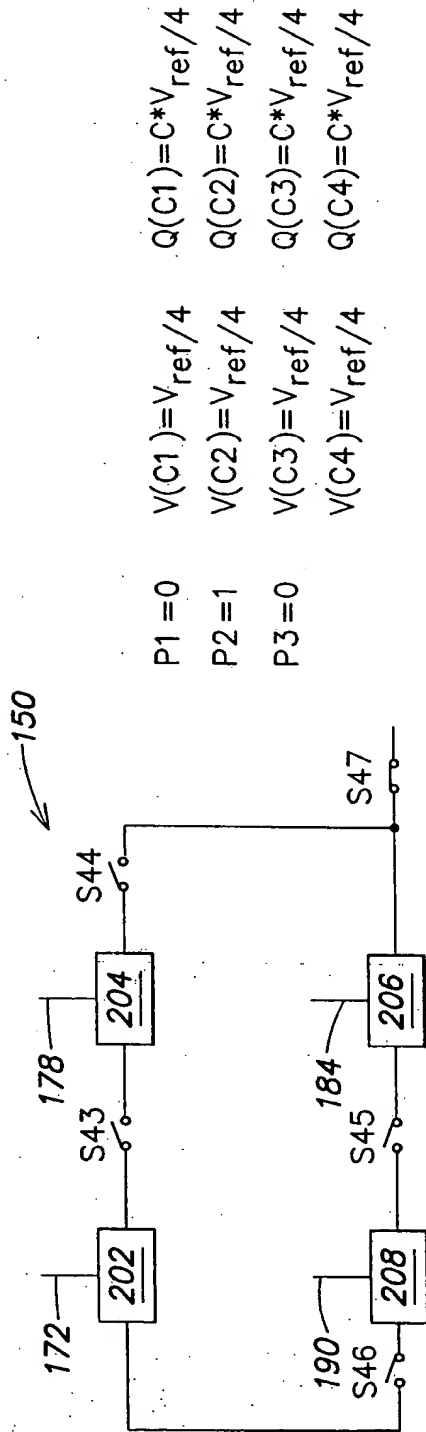
$$\begin{aligned} P1 &= 1 \\ P2 &= 0 \\ P3 &= 0 \end{aligned}$$

FIG. 14B





17/46



$$\begin{aligned} Q(C1) &= C \cdot V_{\text{ref}}/4 \\ Q(C2) &= C \cdot V_{\text{ref}}/4 \\ Q(C3) &= C \cdot V_{\text{ref}}/4 \\ Q(C4) &= C \cdot V_{\text{ref}}/4 \end{aligned}$$

$$\begin{aligned} V(C1) &= V_{\text{ref}}/4 \\ V(C2) &= V_{\text{ref}}/4 \\ V(C3) &= V_{\text{ref}}/4 \\ V(C4) &= V_{\text{ref}}/4 \end{aligned}$$

$$\begin{aligned} P1 &= 0 \\ P2 &= 1 \\ P3 &= 0 \end{aligned}$$

FIG. 14C

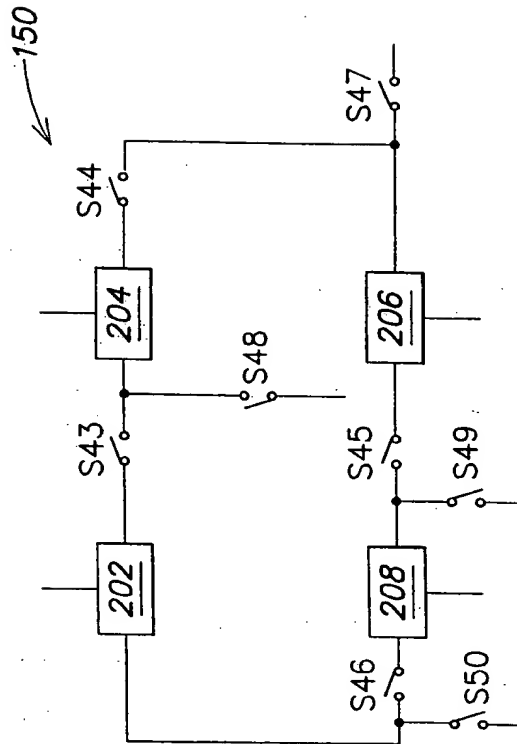


FIG. 15



18/46

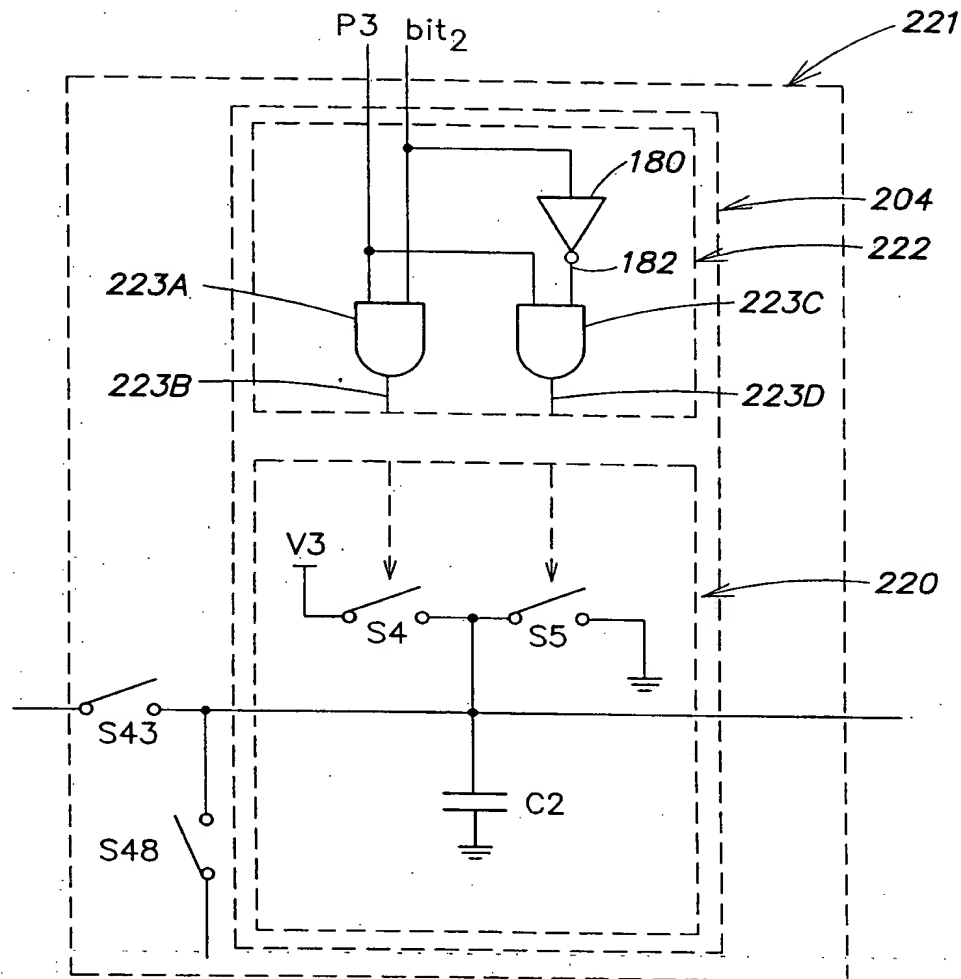


FIG. 16A



19/46

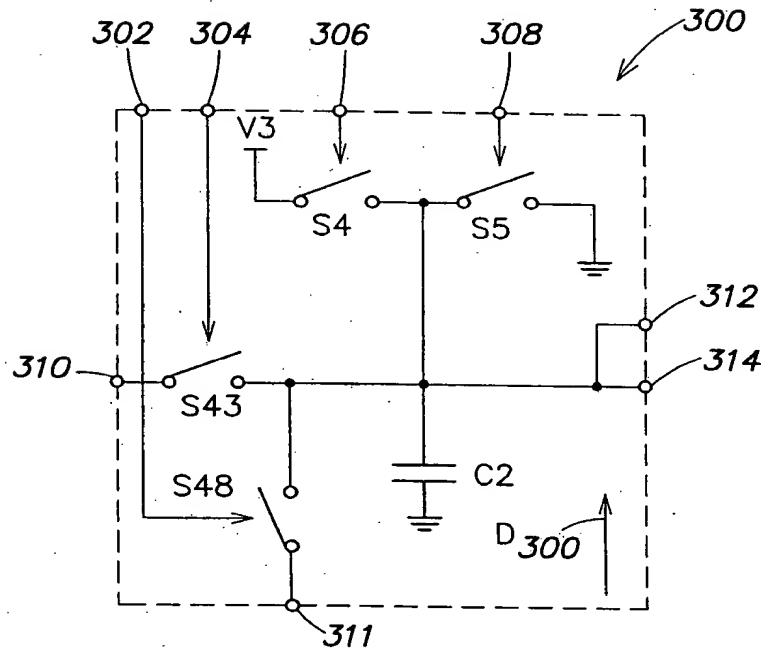


FIG. 16B



20/46

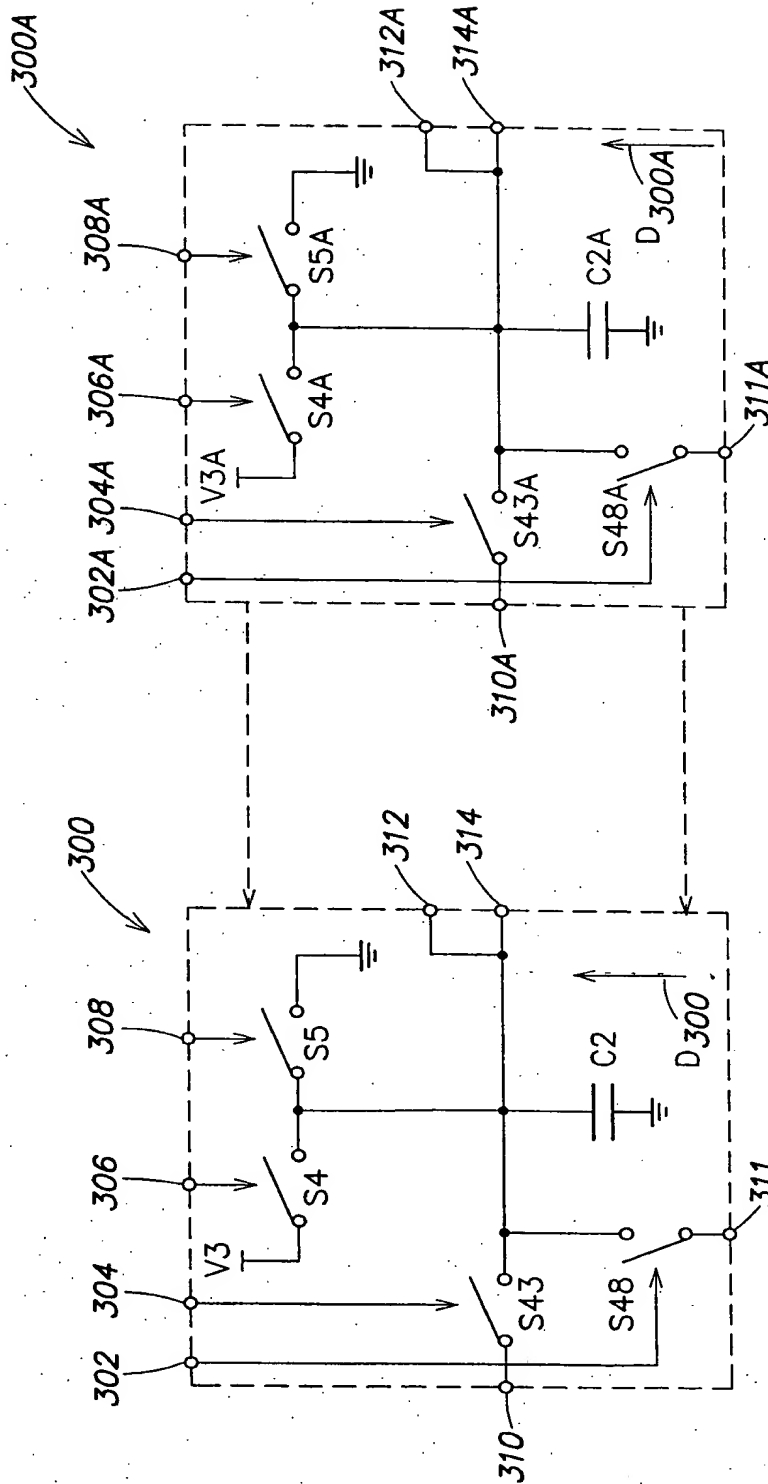
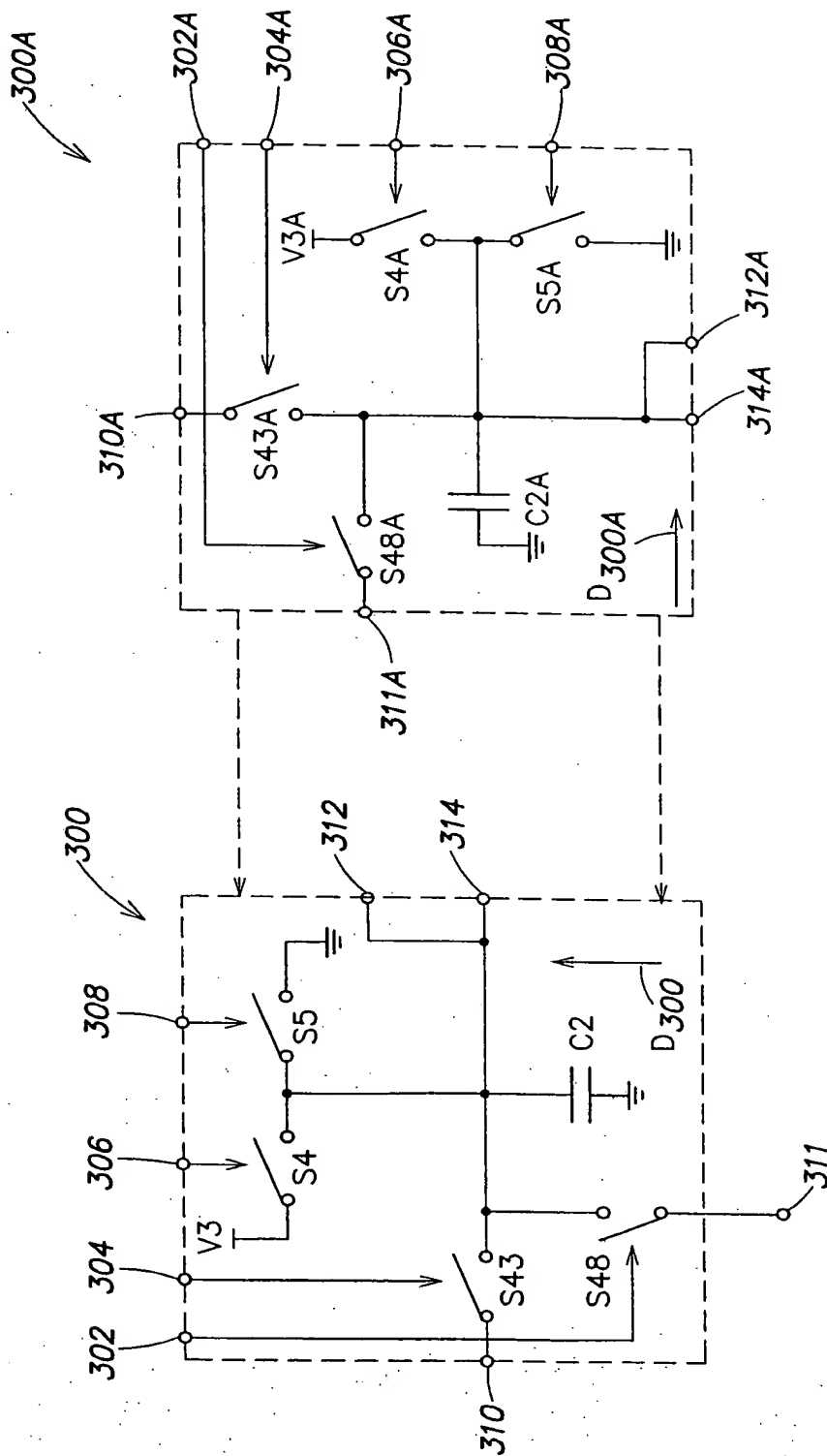


FIG. 16C



22/46

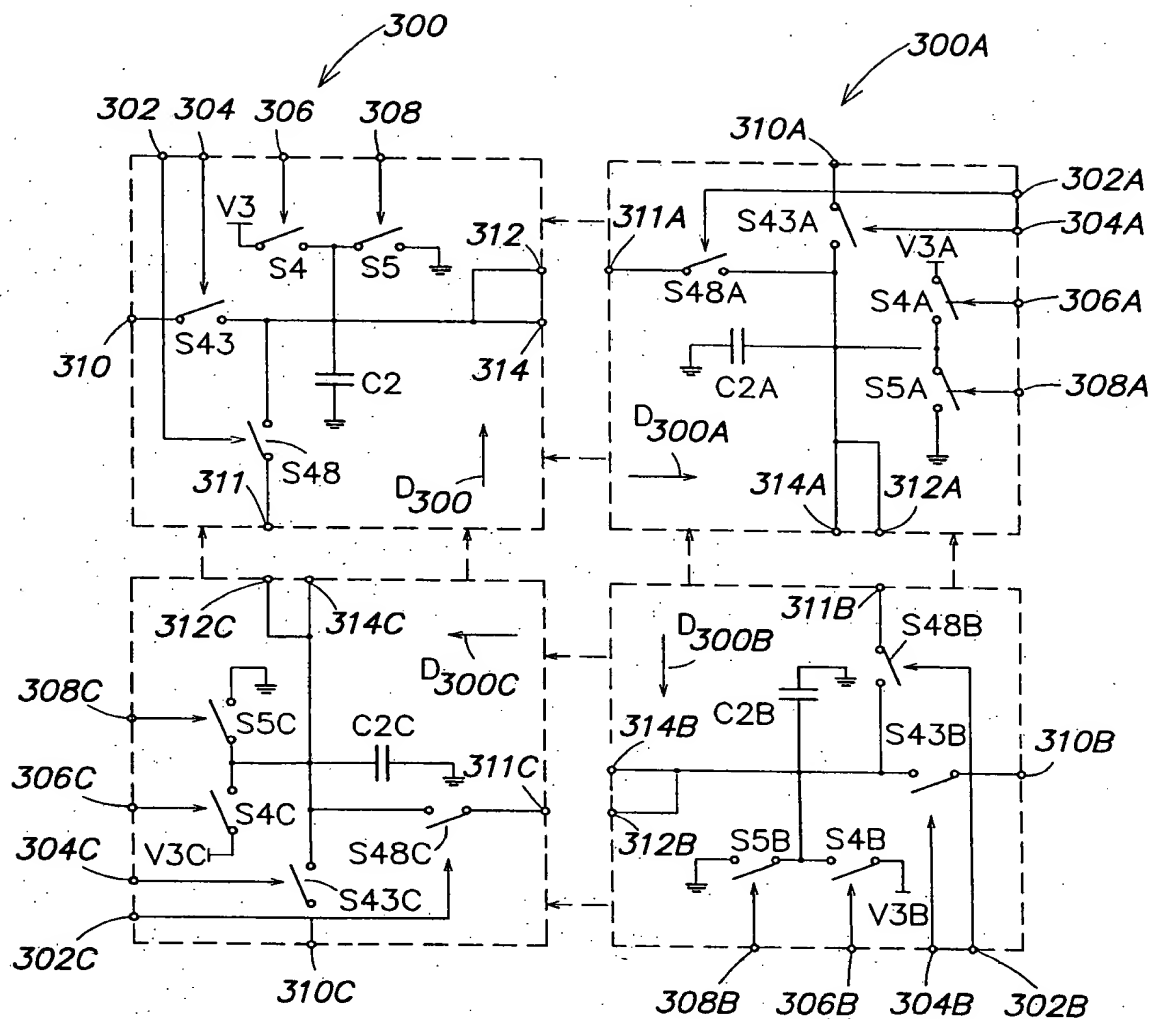
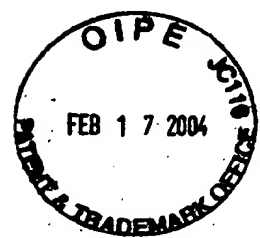


FIG. 16E



FIG. 17

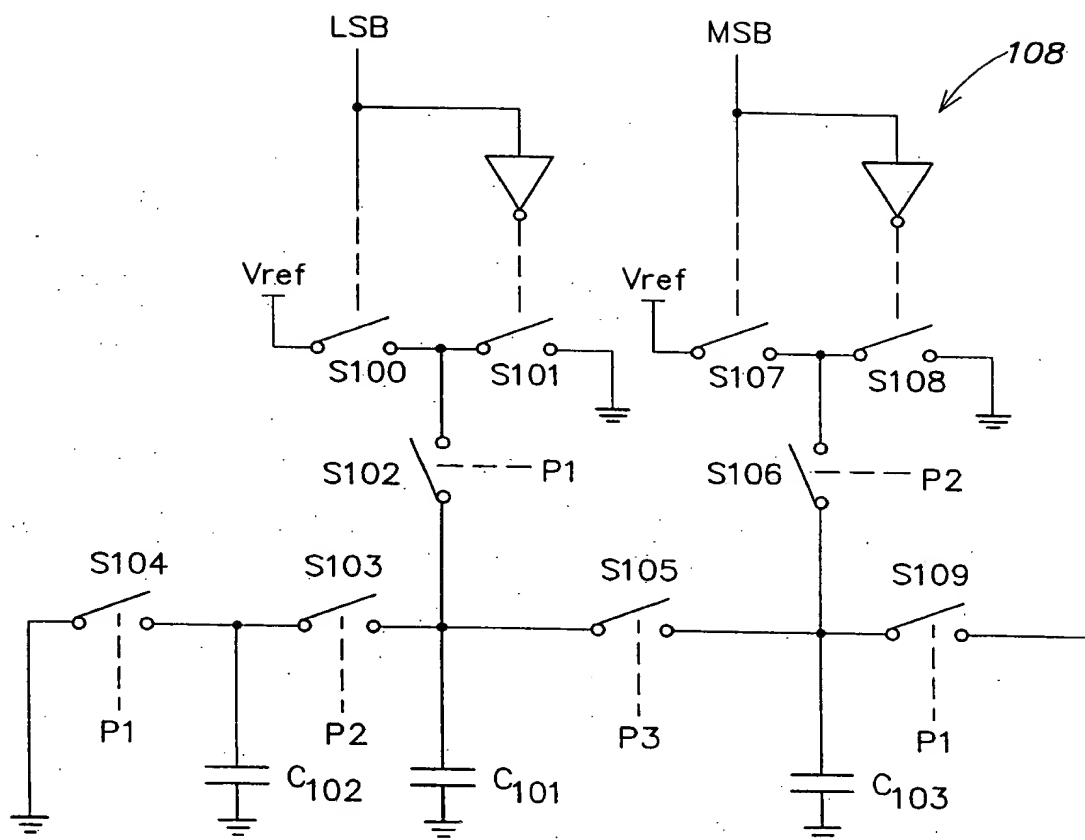


FIG. 18



25/46

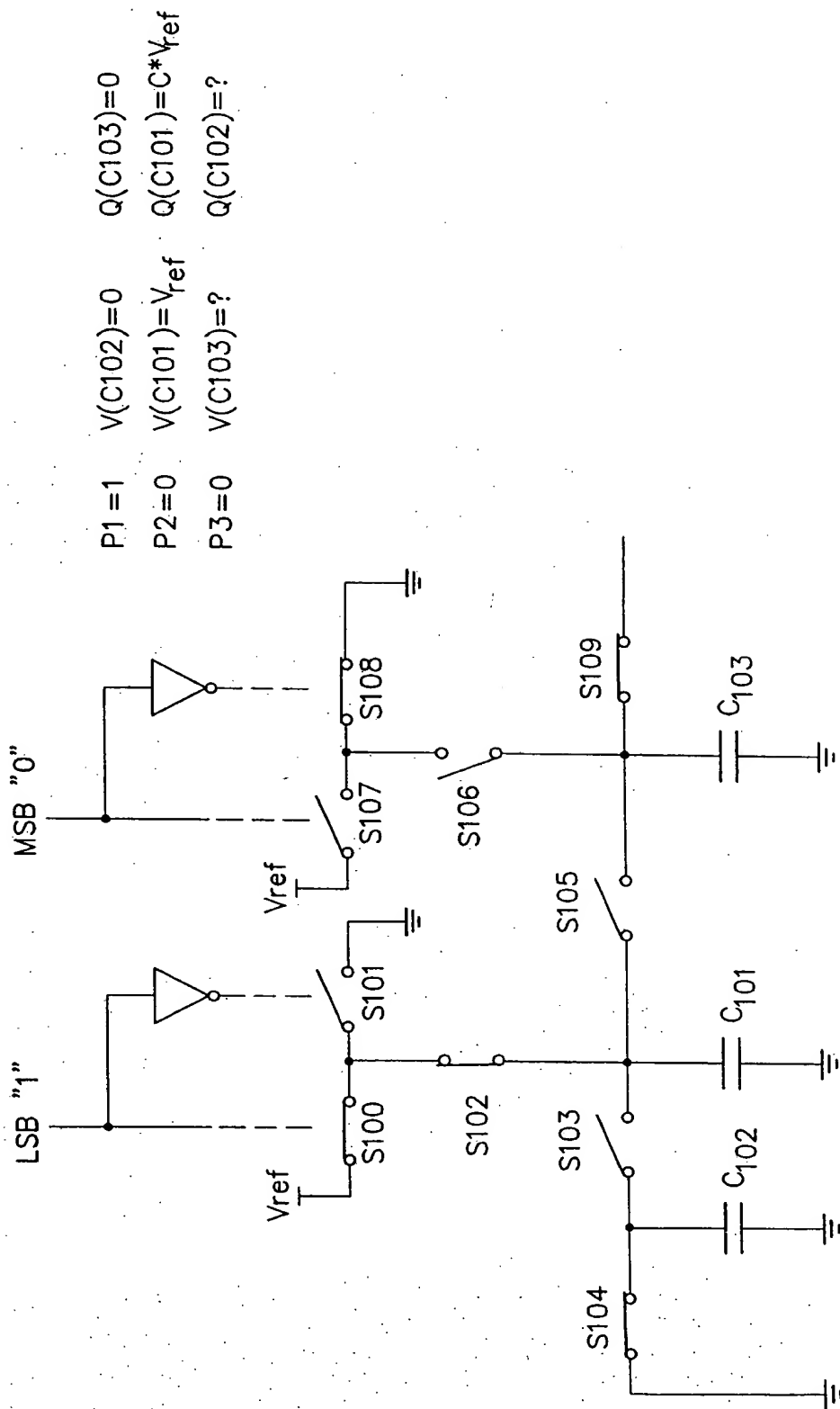


FIG. 19A



26/46

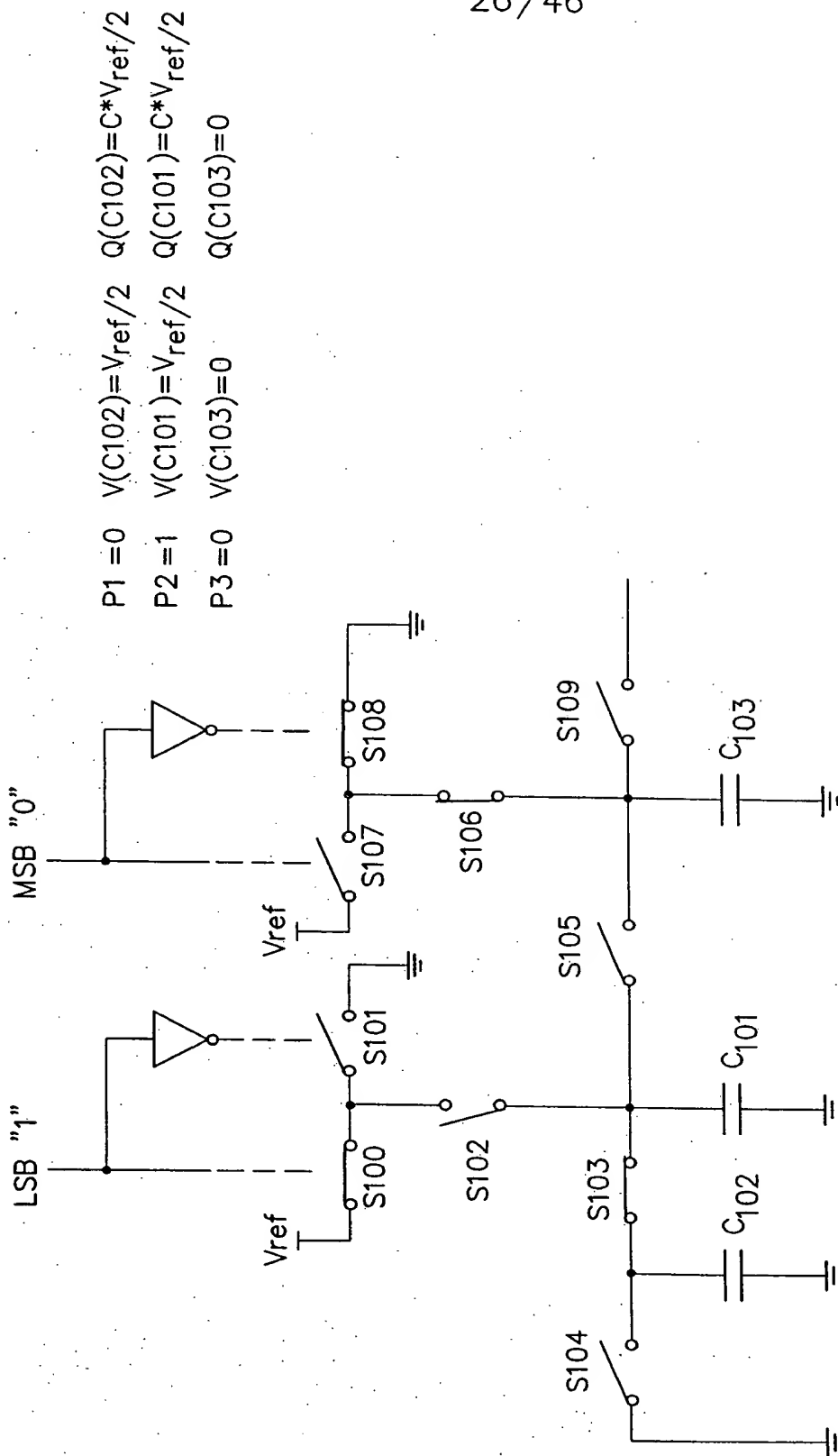
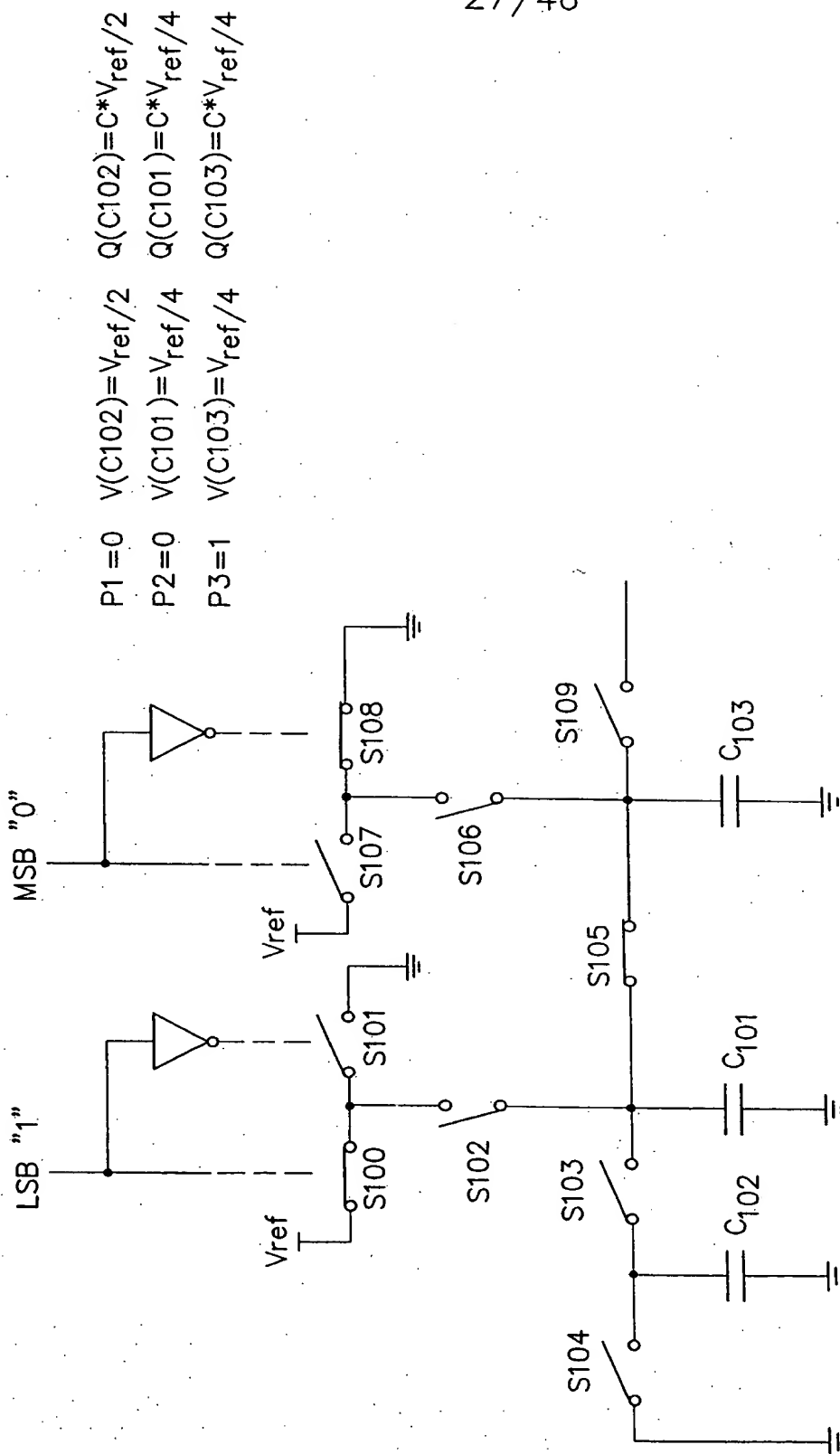


FIG. 19B



27/46



P1=0 $V(C102)=V_{ref}/2$ $Q(C102)=C \cdot V_{ref}/2$
 P2=0 $V(C101)=V_{ref}/4$ $Q(C101)=C \cdot V_{ref}/4$
 P3=1 $V(C103)=V_{ref}/4$ $Q(C103)=C \cdot V_{ref}/4$

FIG. 19C



28/46

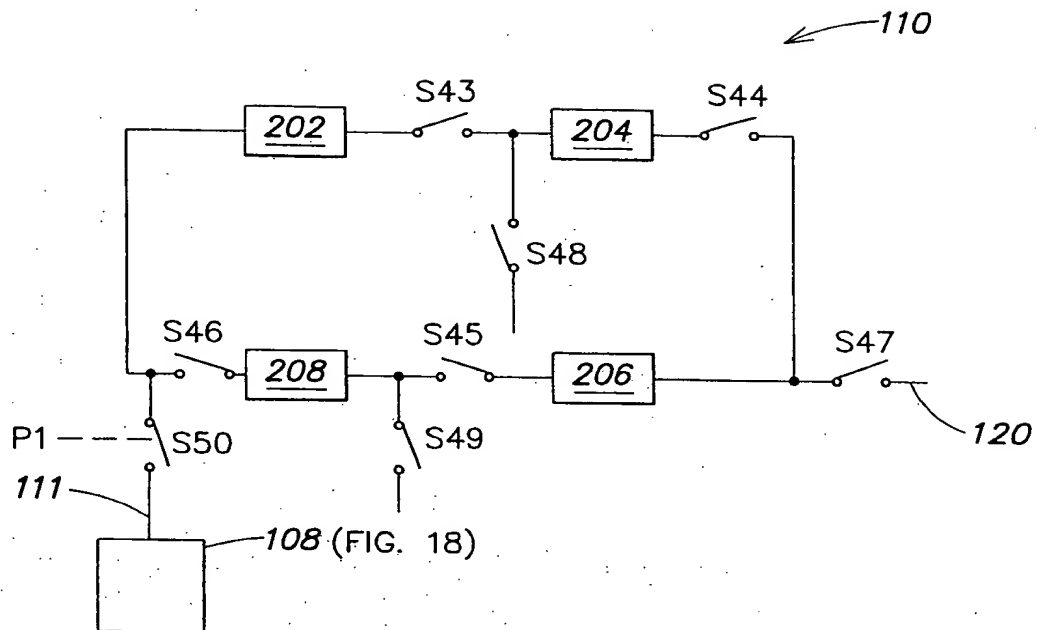
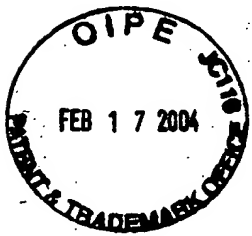


FIG. 20



29/46

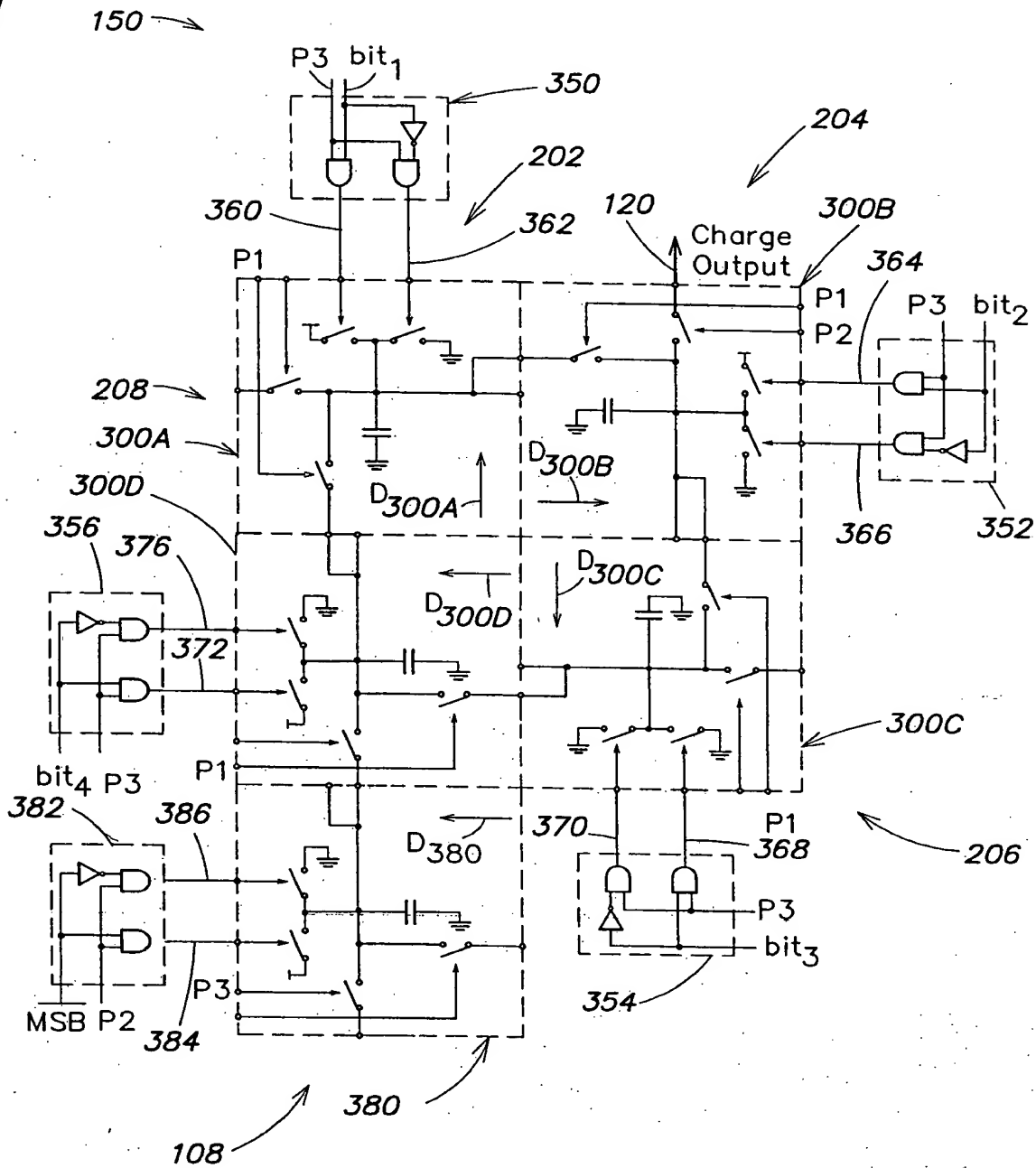


FIG. 21



30/46

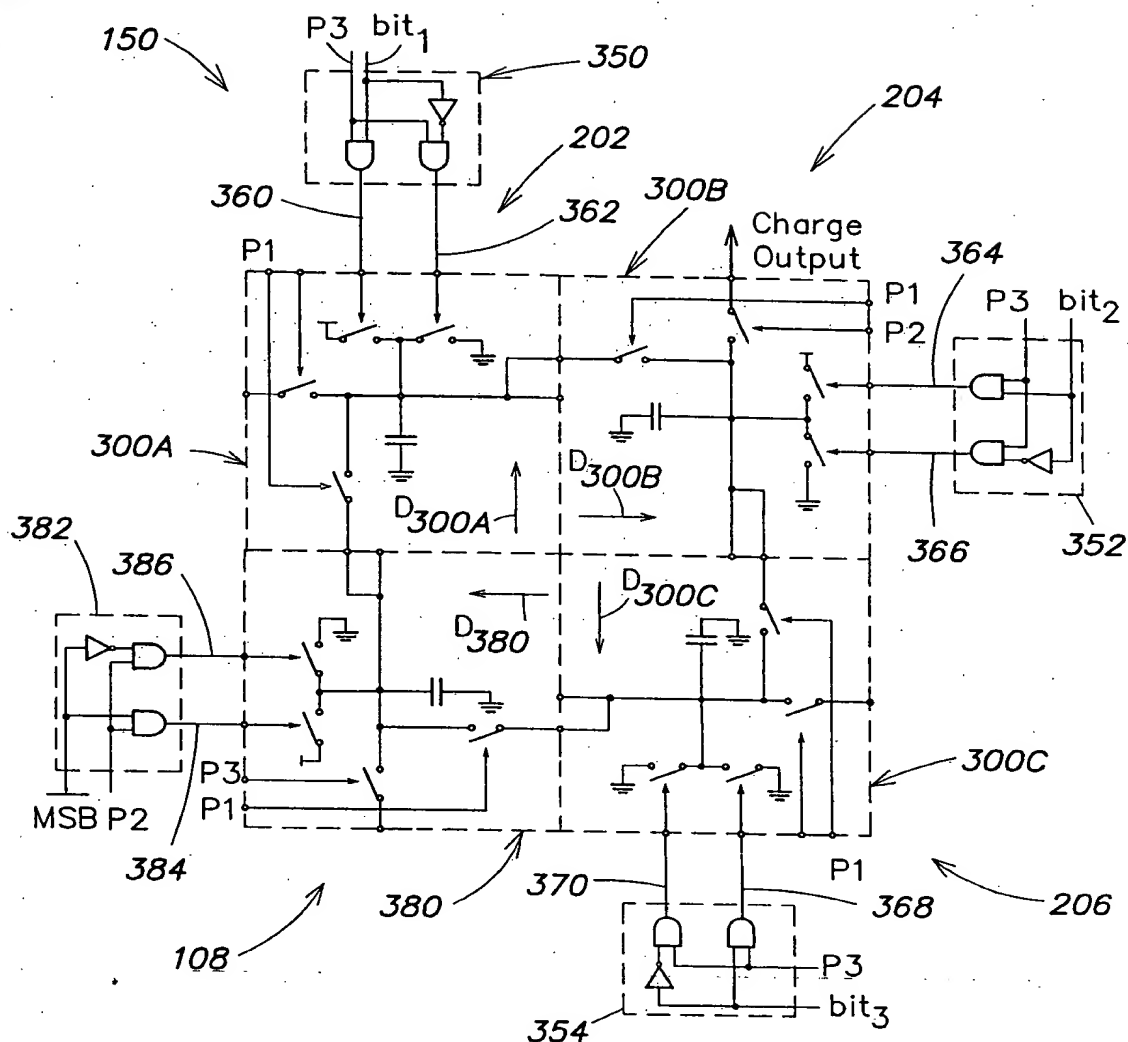


FIG. 22

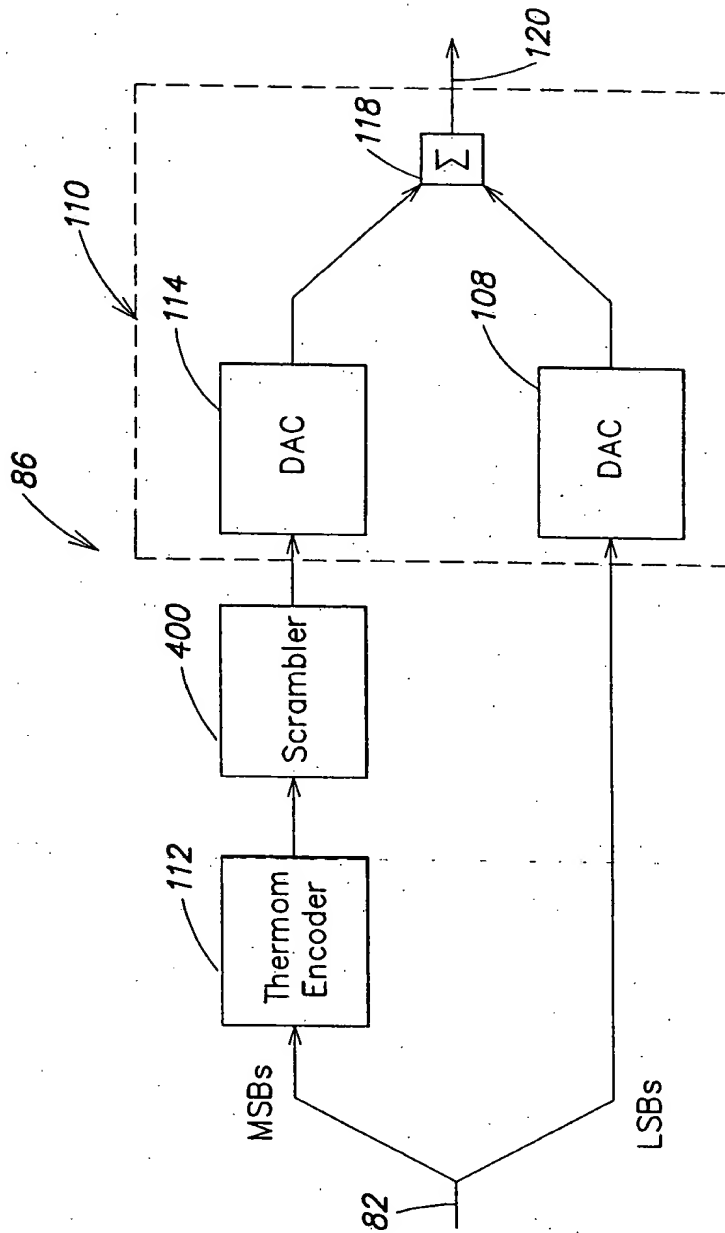


FIG. 23





32/46

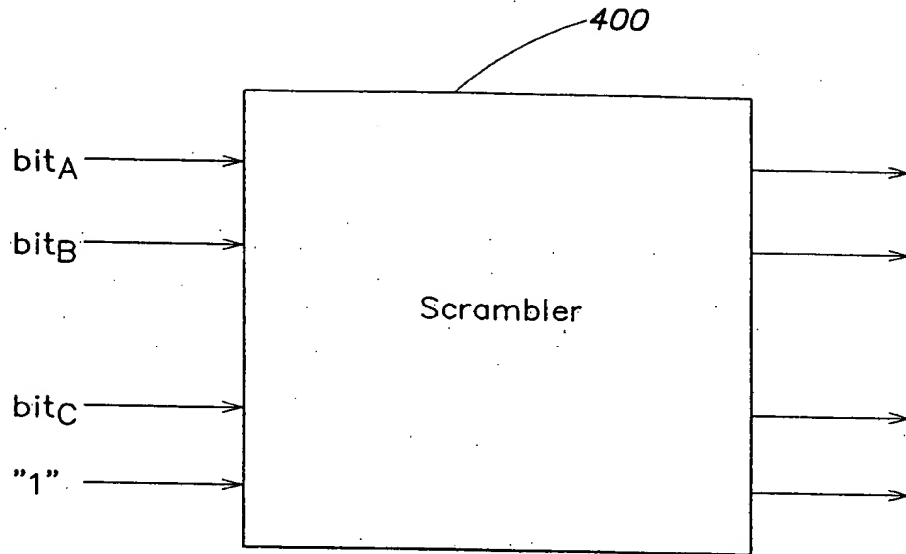


FIG. 24

33/46

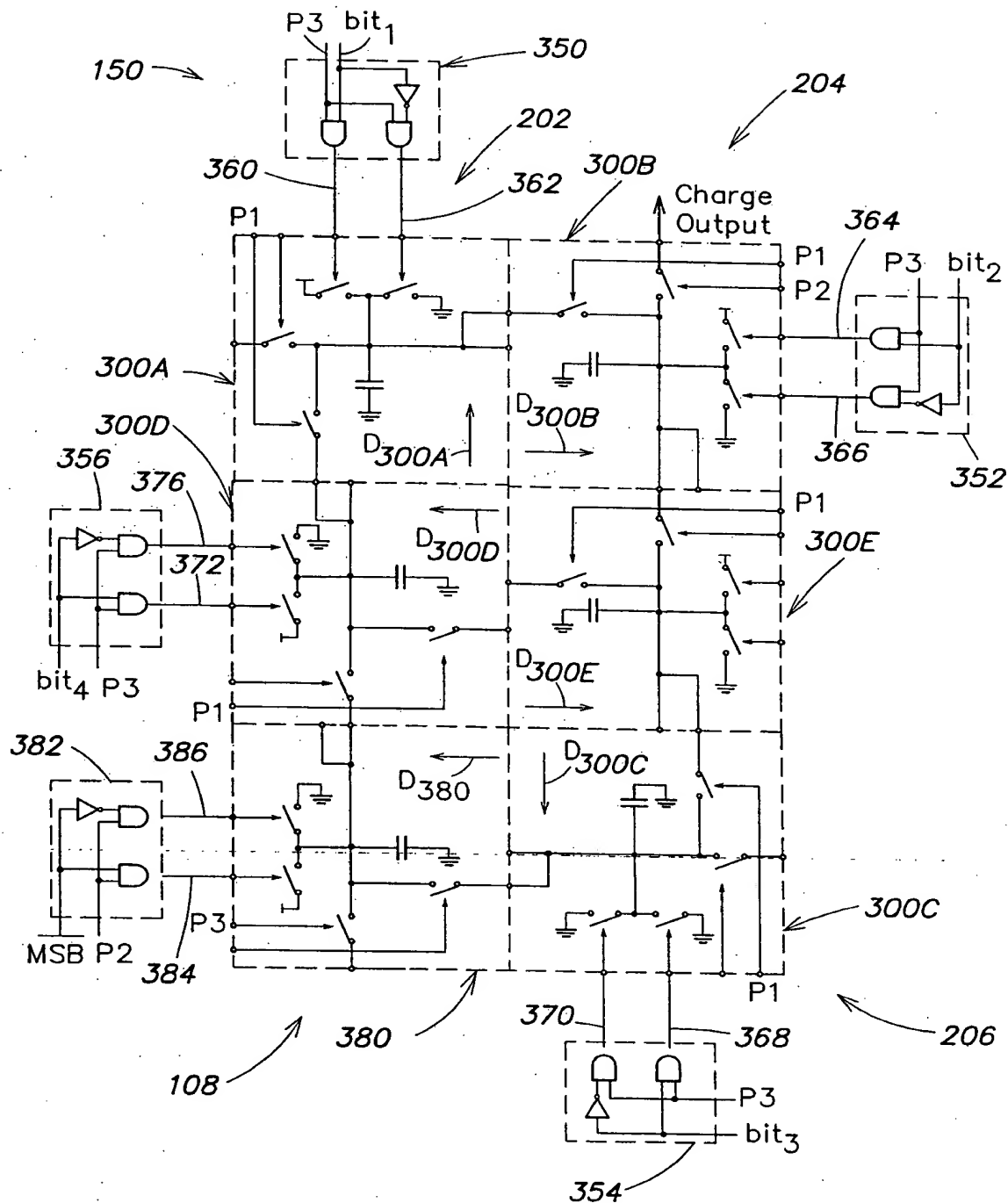


FIG. 25



34/46

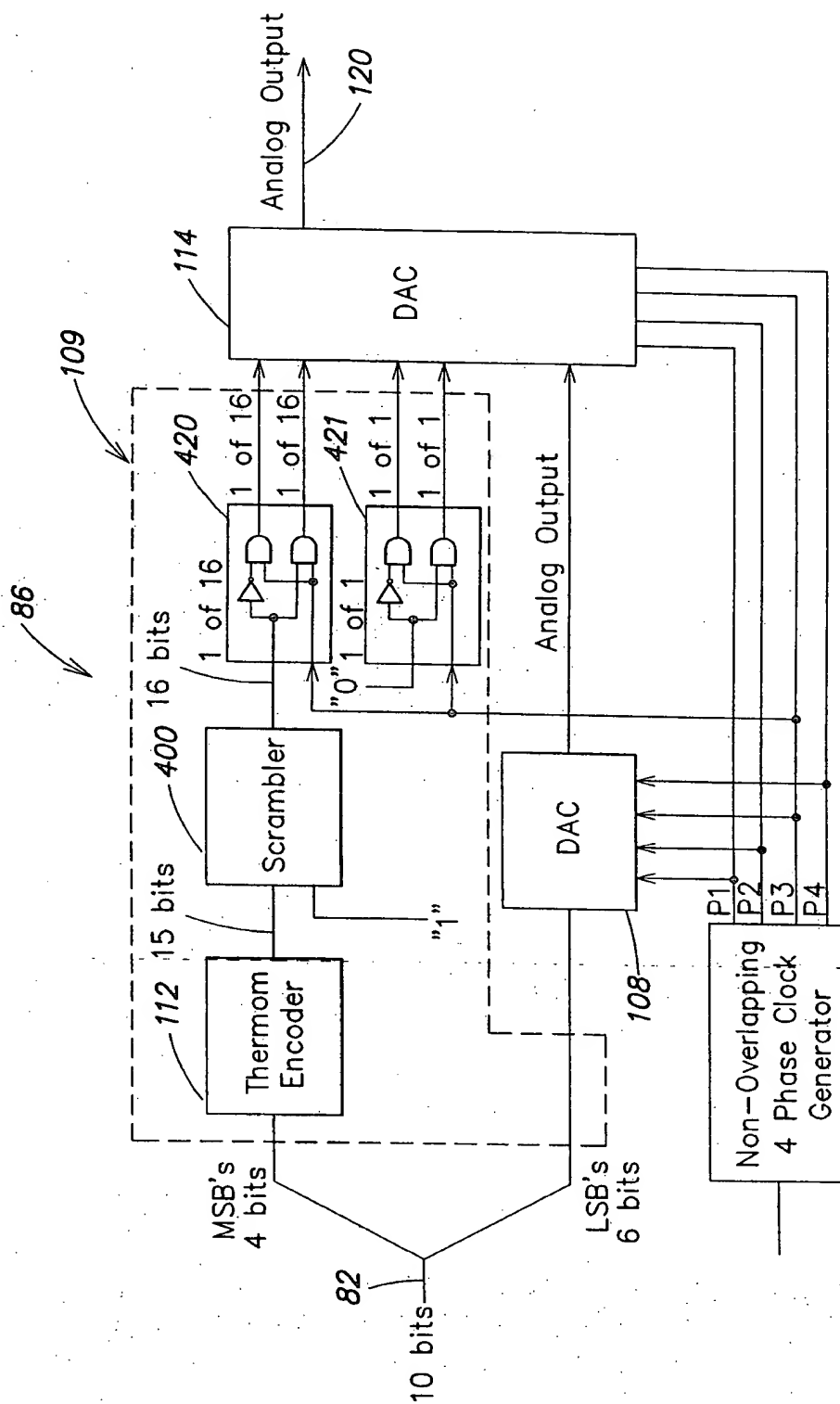


FIG. 26

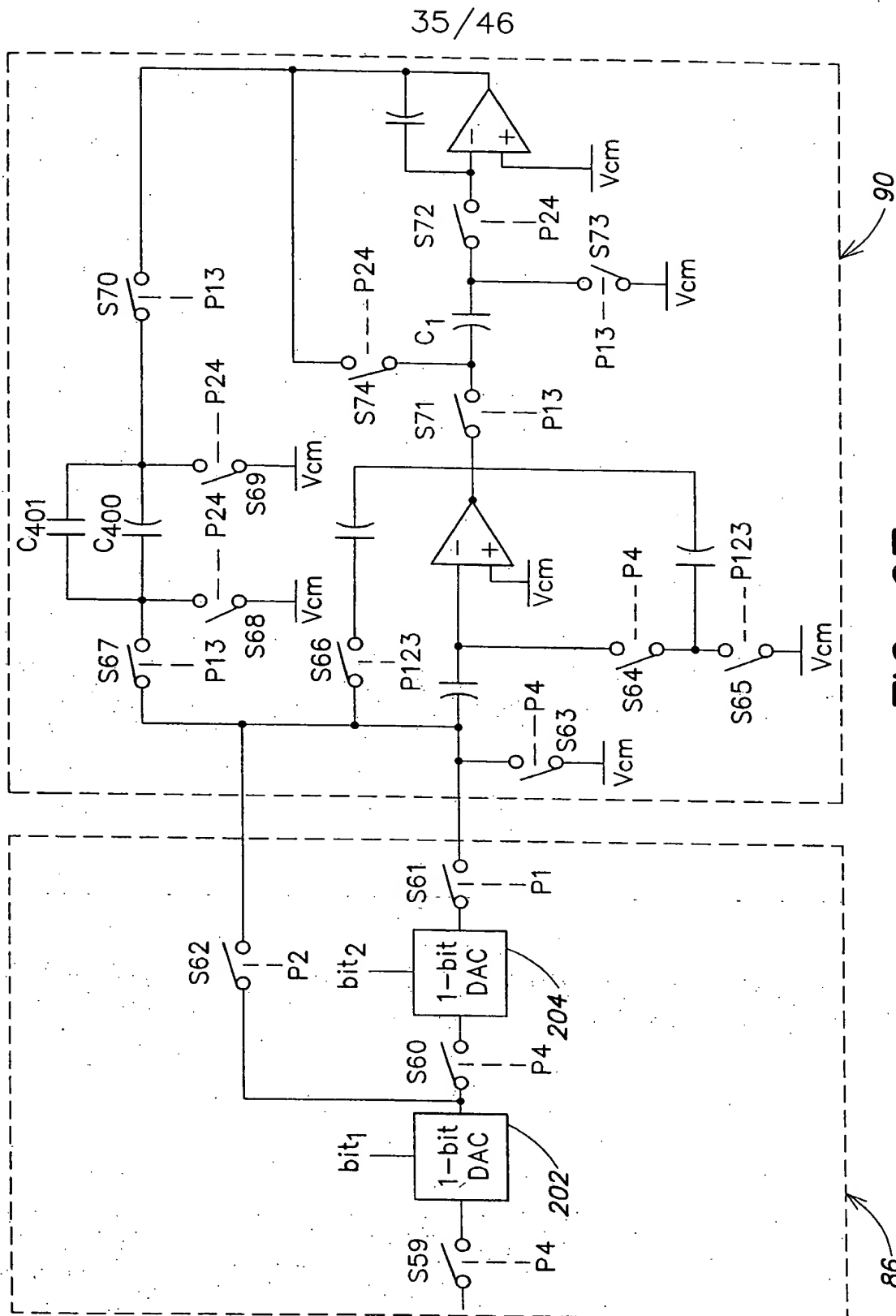


FIG. 27

36/46

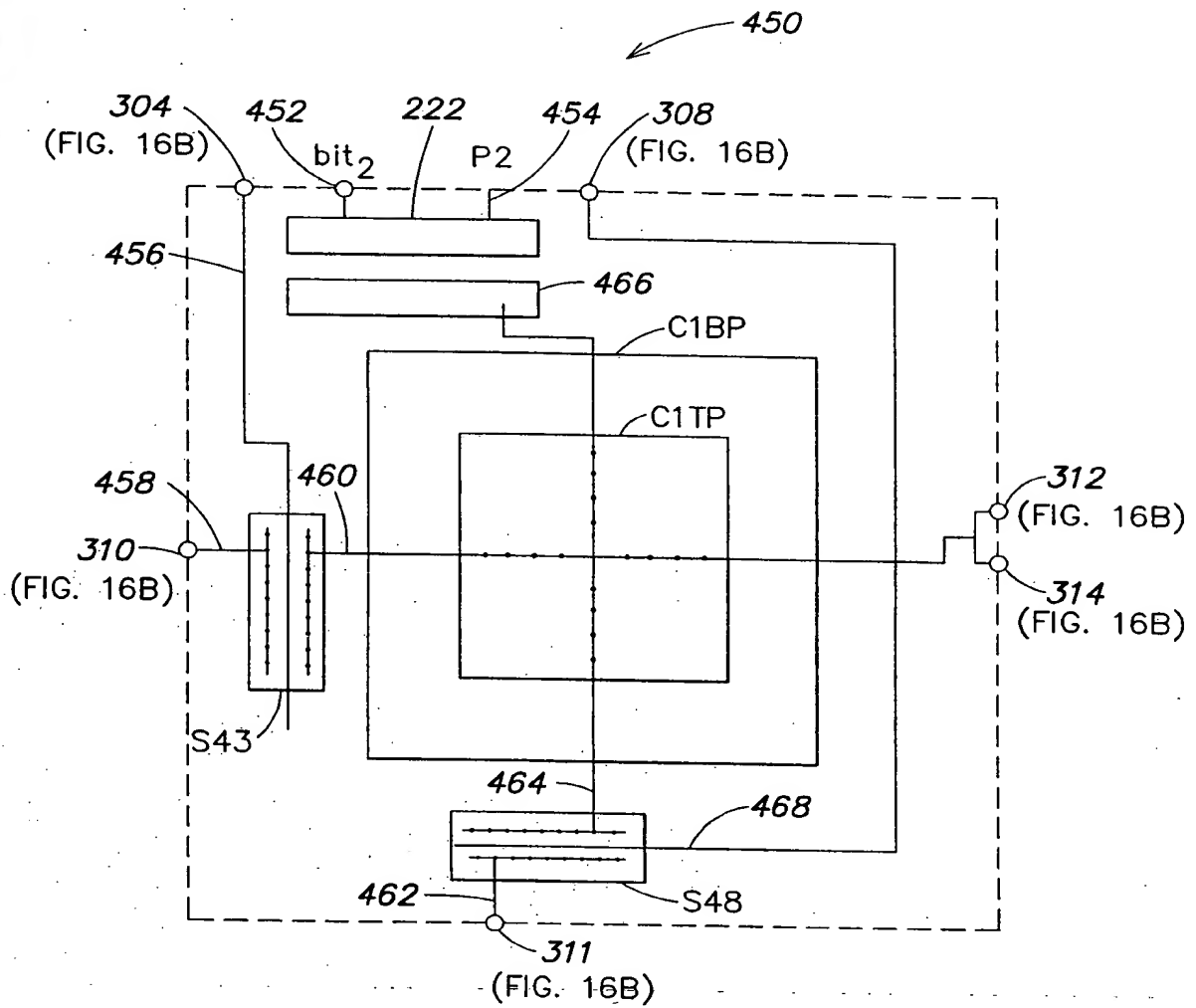


FIG. 28A



37/46

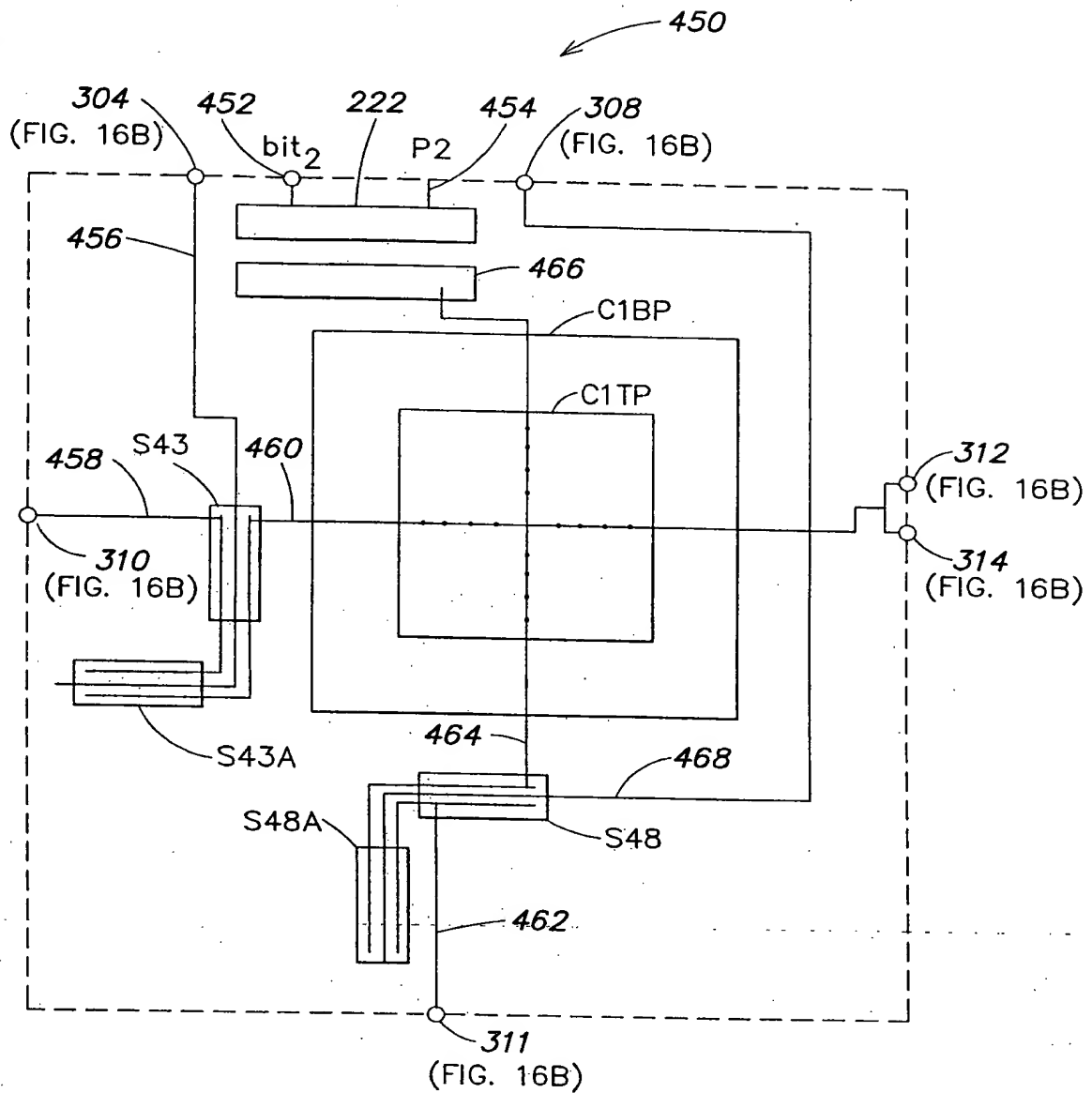


FIG. 28B



38/46

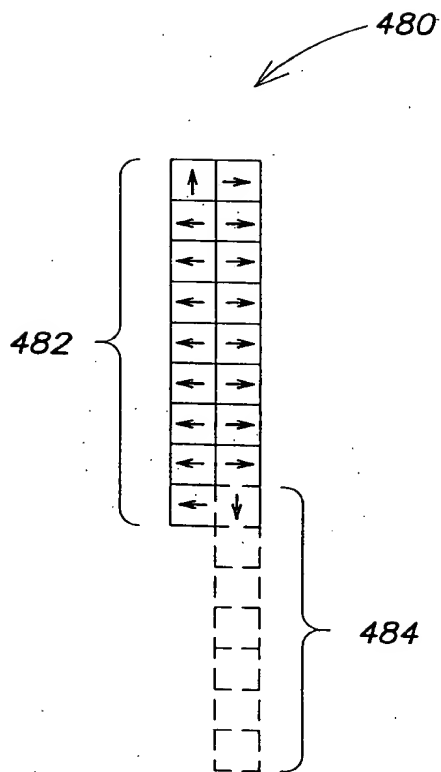


FIG. 29



39/46

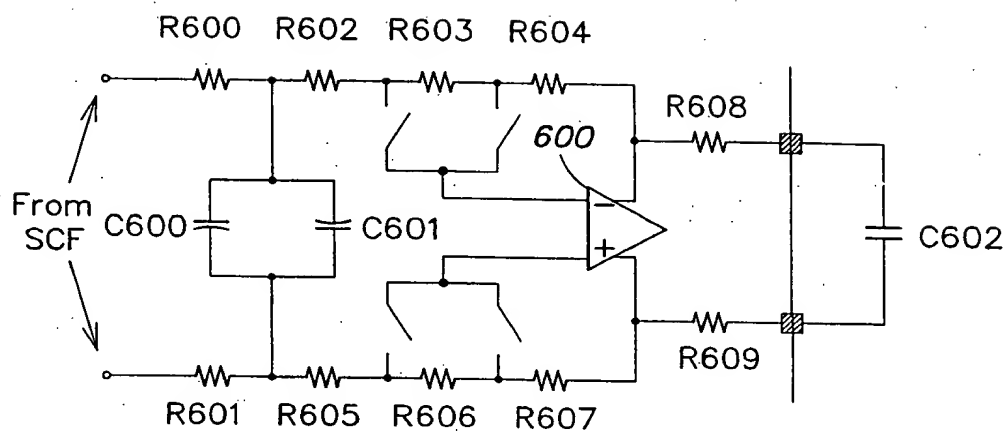


FIG. 30

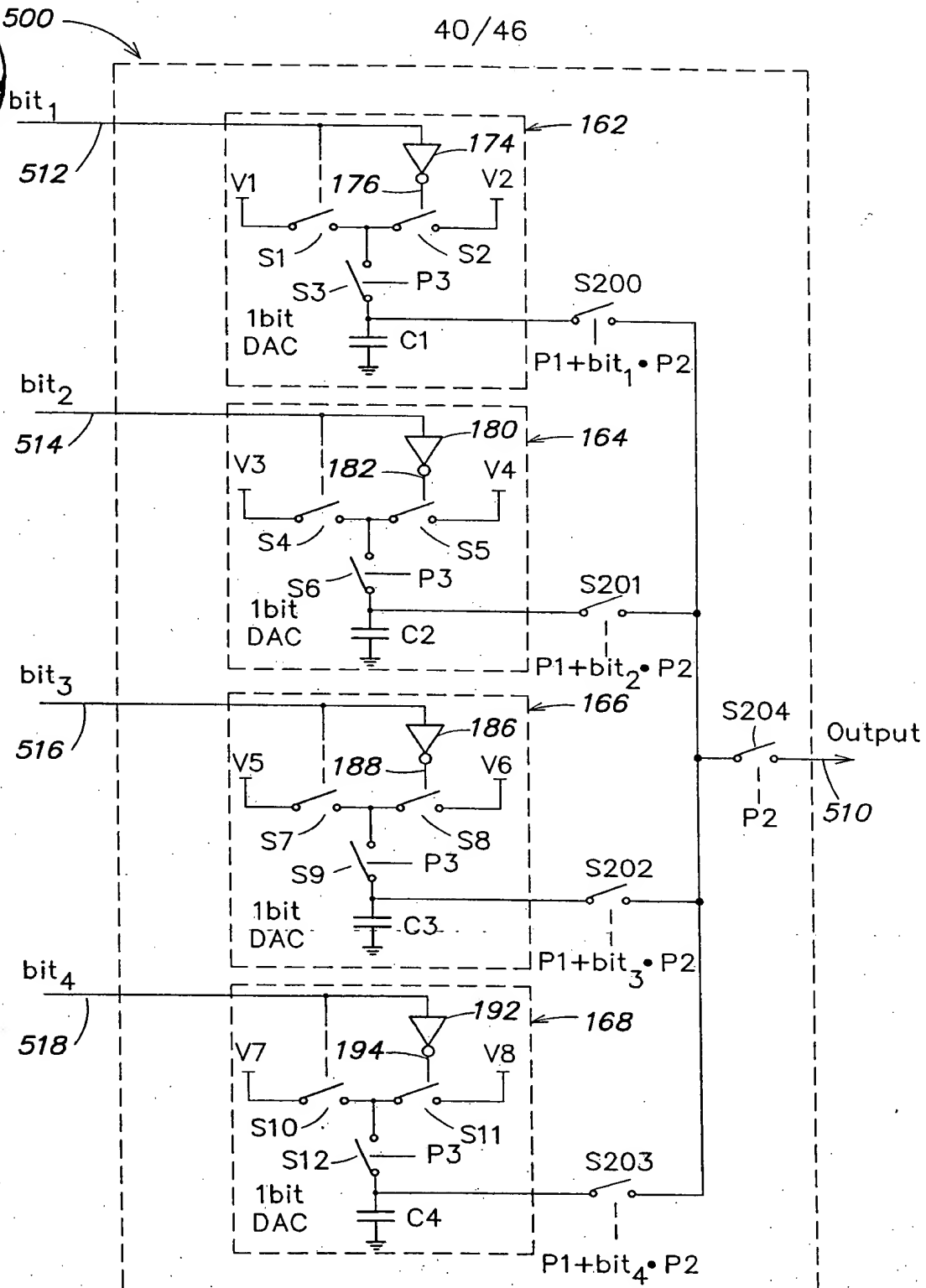


FIG. 31



41/46

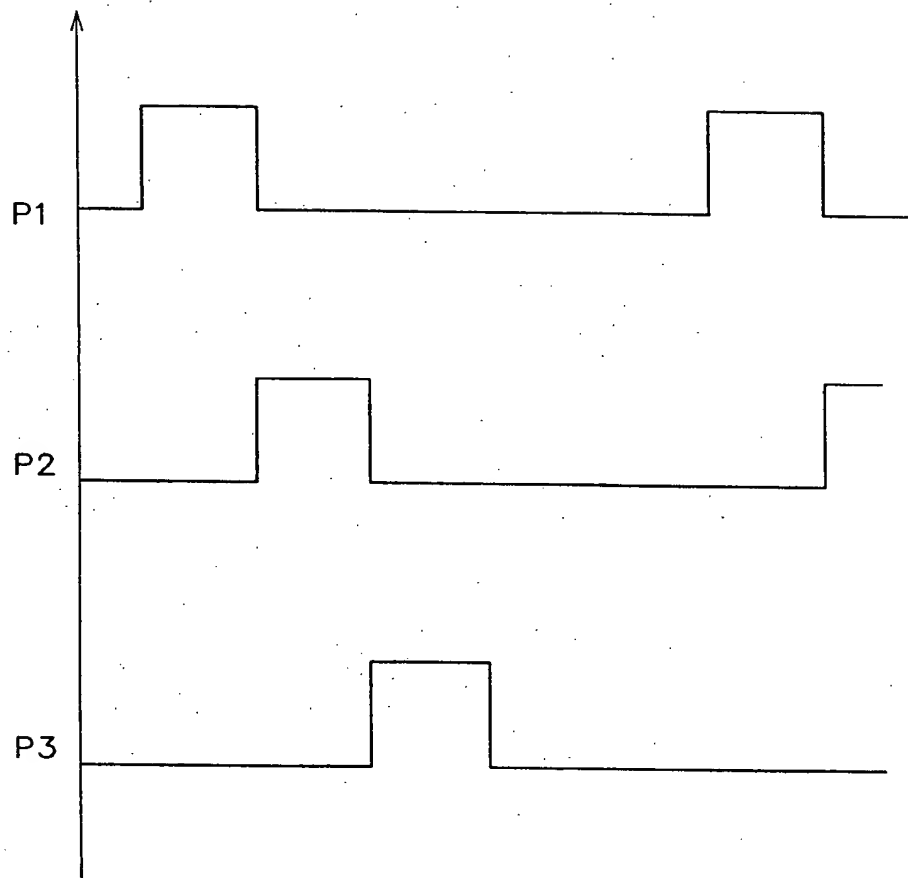


FIG. 32

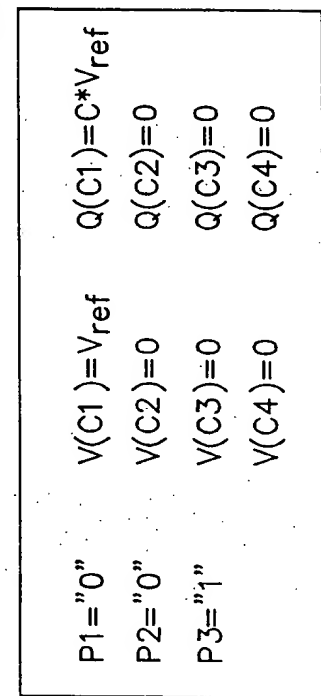
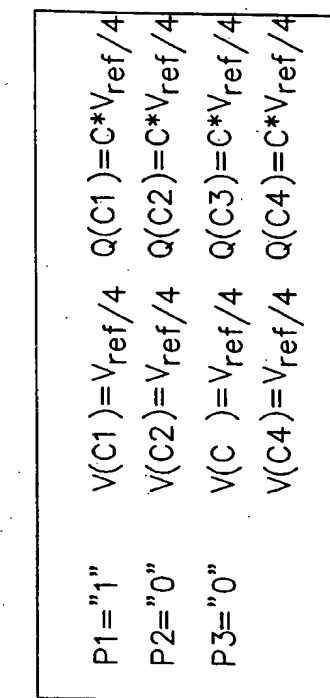


FIG. 33A

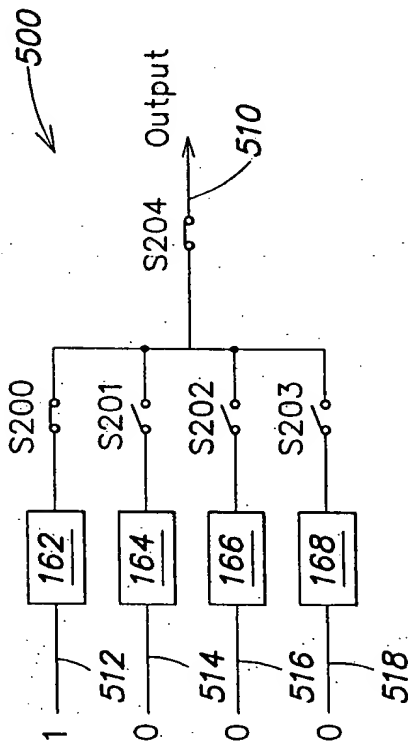


Q delivered to
output terminal
is $Q(C_1) = C \cdot V_{ref}/4$

FIG. 33B



43/46



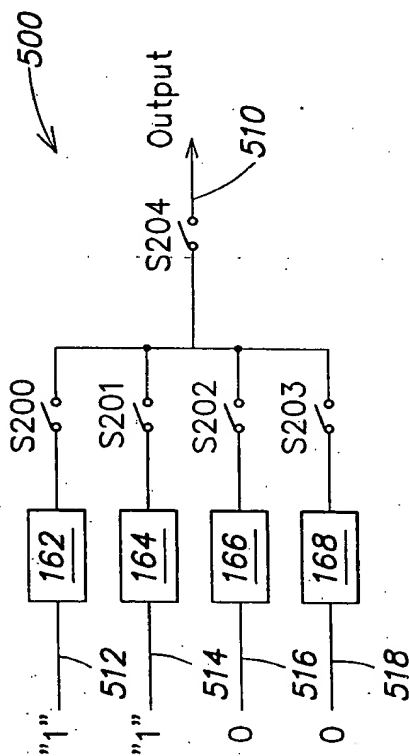
P1 = "0"	$V(C1) = V_{ref}/4$	$Q(C1) = C \cdot V_{ref}/4$
P2 = "1"	$V(C2) = V_{ref}/4$	$Q(C2) = C \cdot V_{ref}/4$
P3 = "0"	$V(C3) = V_{ref}/4$	$Q(C3) = C \cdot V_{ref}/4$
	$V(C4) = V_{ref}/4$	$Q(C4) = C \cdot V_{ref}/4$

Q delivered to
 output terminal
 is $Q(C1) = C \cdot V_{ref}/4$

FIG. 33C

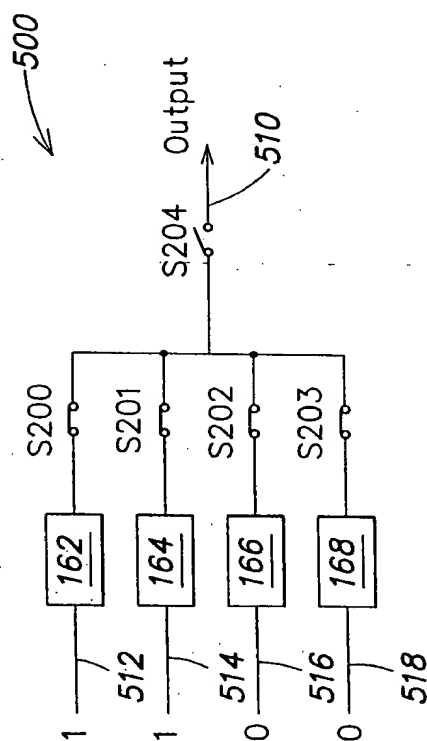


44/46



P1 = "0"	$V(C1) = V_{ref}$	$Q(C1) = C \cdot V_{ref}$
P2 = "0"	$V(C2) = V_{ref}$	$Q(C2) = C \cdot V_{ref}$
P3 = "1"	$V(C3) = 0$	$Q(C3) = 0$
	$V(C4) = 0$	$Q(C4) = 0$

FIG. 34A



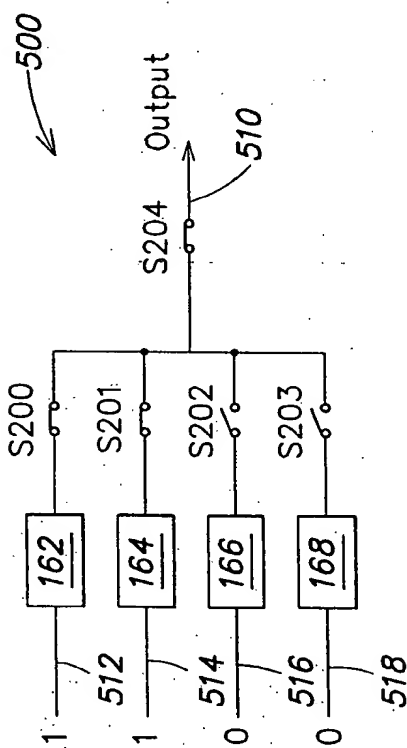
P1 = "1"	$V(C1) = V_{ref}/2$	$Q(C1) = V_{ref}/2$
P2 = "0"	$V(C2) = V_{ref}/2$	$Q(C2) = V_{ref}/2$
P3 = "0"	$V(C3) = V_{ref}/2$	$Q(C3) = V_{ref}/2$
	$V(C4) = V_{ref}/2$	$Q(C4) = V_{ref}/2$

Q delivered to output terminal
 is $Q(C1) + Q(C2) = C \cdot V_{ref}/2 + C \cdot V_{ref}/2 = C \cdot V_{ref}$

FIG. 34B



45/46



P1 = "0"	$V(C1) = V_{ref}/2$	$Q(C1) = V_{ref}/2$
P2 = "1"	$V(C2) = V_{ref}/2$	$Q(C2) = V_{ref}/2$
P3 = "0"	$V(C3) = V_{ref}/2$	$Q(C3) = V_{ref}/2$
	$V(C4) = V_{ref}/2$	$Q(C4) = V_{ref}/2$

Q delivered to output terminal
 is $Q(C_1) + Q(C_2) = C \cdot V_{ref}/2 + C \cdot V_{ref}/2 = C \cdot V_{ref}$

FIG. 34C



46/46

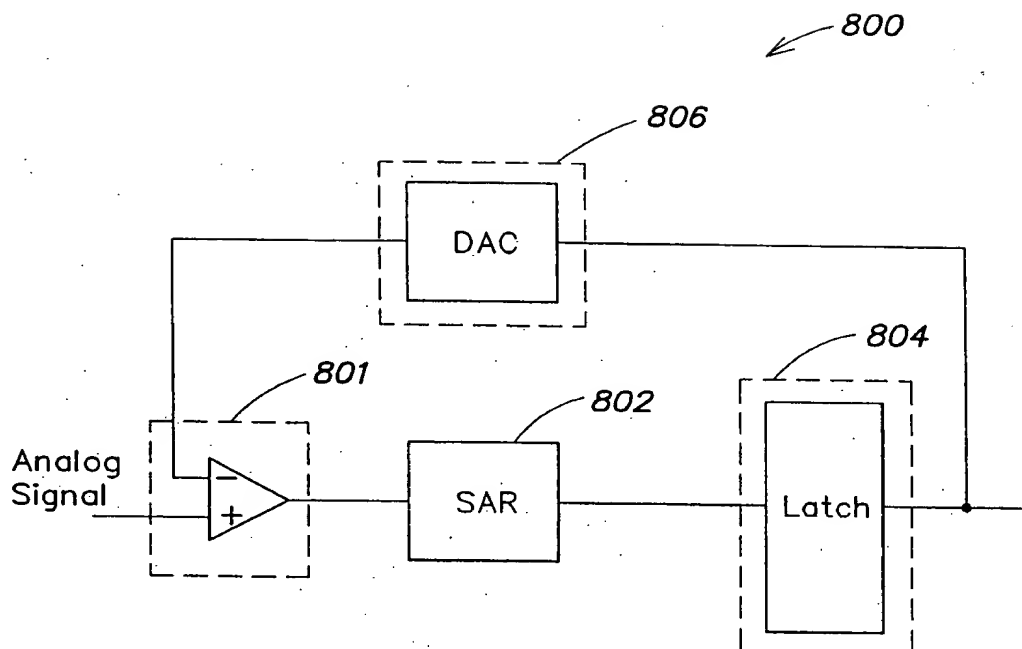


FIG. 35